Operating manual

for

ozone generator

Please read the manual carefully before using the device for the first time

version 2.1 – ENG

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1. Introduction

Dear customer,

Congratulations on your purchase of this high-quality ozone generator Made in Germany. Please read these operating instructions carefully before putting the device into operation. Please keep the operating instructions in a safe place. Observe all safety instructions contained in this manual when using the unit to ensure that everything runs smoothly. The manual should be enclosed with the device if you are leaving it to others for their use.

Your OSS team

1.1 Scope of delivery

The scope of delivery includes the following components:

- 1 x ozone generator
- 2 x fuse
- 2 x remote controls
- 1 x cold appliance cable
- 1 x operating manual

1.2 Warning Symbol

This symbol introduces a hazard warning which, if ignored, can lead to serious injury or death and/or damage to property. The note is preceded by a hazard word that is assigned to a specific hazard level.

Danger!
Risk of serious or fatal injury

Warning!
Risk of serious injury

Caution!
Risk of damage to property

2. Basics about ozone

Oxygen consists of two oxygen atoms that form an oxygen molecule. The unstable ozone molecule, on the other hand, consists of a compound of three oxygen atoms and is gaseous at room temperature and normal pressure. Ozone is the strongest technically available oxidizing agent and thus one of the most effective disinfectants ever. At the same time, it is the most environmentally friendly disinfectant as it decomposes back into oxygen with a half-life of about 30 minutes due to the chemical instability of ozone. No other chemical is introduced into the process. Due to its oxidizing effect, it is toxic to humans.

2.1 Ozone production

Our device uses high-voltage electricity to split the oxygen molecule into its components, i.e. two oxygen atoms. These are highly reactive and are looking for new connecting partners. This method of generating ozone is called Cororna discharge. The highly reactive, split oxygen atoms react with oxygen molecules that have not been split to form ozone. After some time the ozone then decomposes to harmless oxygen again.

2.2 Application of ozone

The use of ozone is very diverse. As an environmentally friendly and at the same time strong oxidizing agent, it can be used practically everywhere where pollutants or interfering substances can be removed efficiently by oxidation process without the formation of harmful by-products - in contrast to chlorination. Cleaning with ozone has the advantage that no harmful by-products, such as certain salts and chlorine compounds, are formed. (An-)organic substances which are not oxidized by ozone are e.g. glass, stainless steel, Teflon, PVC, ceramic materials and concrete.

Ozone can be used in many ways, for example for the following applications:

- Kitchen odour
- Cigarette smoke
- Cadaveric odours
- Urine odors
- Musty and mouldy odour
- Smell of burning
- Animal odors
- Against mould
- Against mites
- Air purification

..... and a multitude of other applications

3. Safety information - Working with ozone

First read all instructions carefully and use the corresponding pictures. If any ambiguities arise, please contact the manufacturer before putting the device into operation.

READ THE OPERATING INSTRUCTIONS OF THE OZONE GENERATOR CAREFULLY BEFORE PUTTING INTO OPERATION. MAKE SURE THAT YOU HAVE READ AND UNDERSTOOD ALL SAFETY INSTRUCTIONS AND WARNINGS. ALL RESPONSIBILITY FOR DAMAGE OR INJURY RESULTING FROM FAILURE TO FOLLOW THESE INSTRUCTIONS, OR FROM FAILURE TO OBSERVE NORMAL CARE AND ATTENTION IN HANDLING, OPERATING, MAINTAINING OR MANUFACTURING, EVEN IF NOT EXPRESSLY STATED IN THESE INSTRUCTIONS, WILL BE REJECTED BY US.

Ozone is a gas which, due to its properties, can cause serious damage to health when inhaled. Ozone is toxic / poisonous for animals, plants and humans. All safety instructions must therefore be observed.

When operating the ozone generator within the Federal Republic of Germany, the guidelines of the German employers' liability insurance association (ZH 1/474) must be observed. In other countries, the applicable national regulations and rules must be observed.

Ozone irritates the respiratory tract due to its oxidizing effect. When using the device, uncontrolled escape or release of the gas must be avoided. The odor of the gas is pungent - sharp to chlorine-like and must not be inhaled. After treatment with ozone, the treated rooms must be properly ventilated. For this reason, it must be possible to ventilate the rooms with sufficient fresh air supply and an air exhaust at every use. This should be done from the outside.

Ozone must not be inhaled and will cause a
Lung function reduction that often lasts several days!

If ozone is inhaled, seek medical attention immediately. Also seek medical attention immediately if you experience any of the following symptoms:
Eye irritation, cough irritation, temple headache, dizziness, shortness of breath and pain when inhaling.

In Germany, the meteorological limit value for ozone was 0.12g/m3. The valid MAK value is 0.1ppm or 0.2mg/m3. For operation outside Germany, other limit values may apply.

First aid

- Leave the danger area and take yourself and other affected persons directly to fresh air.
- Check your pulse rate and breathing.
- Call the emergency call immediately and mention that it is an accident with ozone.

4. Operation of the device

This chapter contains all you need to know about operating and handling an ozone generator.

4.1 Unpacking and inspection

After unpacking, the unit must be free of all packaging materials. Special care must be taken to ensure that the front and rear sides are free of packaging material and that no foreign objects have entered the interior of the device, otherwise damage may occur when the device is put into operation. The device must be checked for external damage before it is connected to the mains.

4.2 General safety instructions

Observe the following safety instructions! Non-observance can have serious consequences for the health of persons as well as damage to property and the environment. Do not put the device into operation if there are still unanswered questions regarding operation and application. In such a case, please contact OSS Customer Service.

Caution!

- The generator may only be operated in dry and dust-free rooms, without direct sunlight and without contact to toxic gases.
- Operating conditions:
  Relative humidity: < 75%
  Ambient temperature: < 30°C
- The device must not be modified or dismantled - Opening may only be carried out by the manufacturer.
- No maintenance work may be carried out that is not specified in the operating instructions.

Warning!

- All repairs must only be carried out by OSS personnel.
- The unit must be switched off and disconnected from the power supply before maintenance work is carried out.
- The ozone generator must not be directed against people.
- Always operate the ozone generator in a well-ventilated place.

Danger!

- The device must not be used by children.
- Risk of death due to suffocation or swallowing of small parts and packaging material. Keep children away. Dispose of the packaging material immediately and professionally.
- The device may only be used by persons who have been instructed in its handling and the resulting dangers. It must be ensured that no ozone can escape from the operating room - close windows, doors and other openings airtight.

Do not allow any plants, animals or people to be in the treated room while the device is in use! The premises must not be entered again until after 10 hours (or if the ozone value has fallen below 0.1 mg/m3). This ozone limit value must be determined using a measuring instrument. A gas mask with an ozone filter should always be used to protect the respiratory tract. The treated rooms should always be locked. Make sure that no strangers have access. The area must be marked with warning signs. After use, the rooms must be ventilated with fresh air for at least 2 hours.

Do not allow the product to come into contact with rain or wetness. If it does come into contact, disconnect the power plug and have the device checked by the manufacturer before using it again. This also applies to contact with other liquids and aggressive gases.

Disconnect the device from the power supply after use. Never disconnect the mains plug from the socket by pulling the cable.

There is an acute danger of poisoning during operation of the unit, so never enter the treated area!→ **Danger to life!**

The front and rear sides of the ozone generator must be free at all times and must not be blocked. Do not place any objects near the ozone generator and at least 15 cm away from walls or objects.

Due to legal requirements, the device is supplied with an earthing cable. It is strictly forbidden to bypass it or to connect it to an unearthed power supply.

Under no circumstances may the device be opened, furthermore it is forbidden to bypass the safety devices or make any changes.

Under no circumstances may the ozone generator be put into operation if the housing is damaged. Re-positioning is only permitted when the ozone generator is switched off.

Long ozone treatments can result in cracking or embrittlement of materials containing natural rubber.

4.3. Commissioning

The ozone generator needs a 220-240V AC, 50-60Hz supply and should be supplied with power immediately before use. If a gas supply is carried out in an unheated room which is later used at a higher temperature level, the risk of subsequent evaporation is very high. Therefore, the room temperature during treatment should always be approx. 5°C above the later usage temperature.

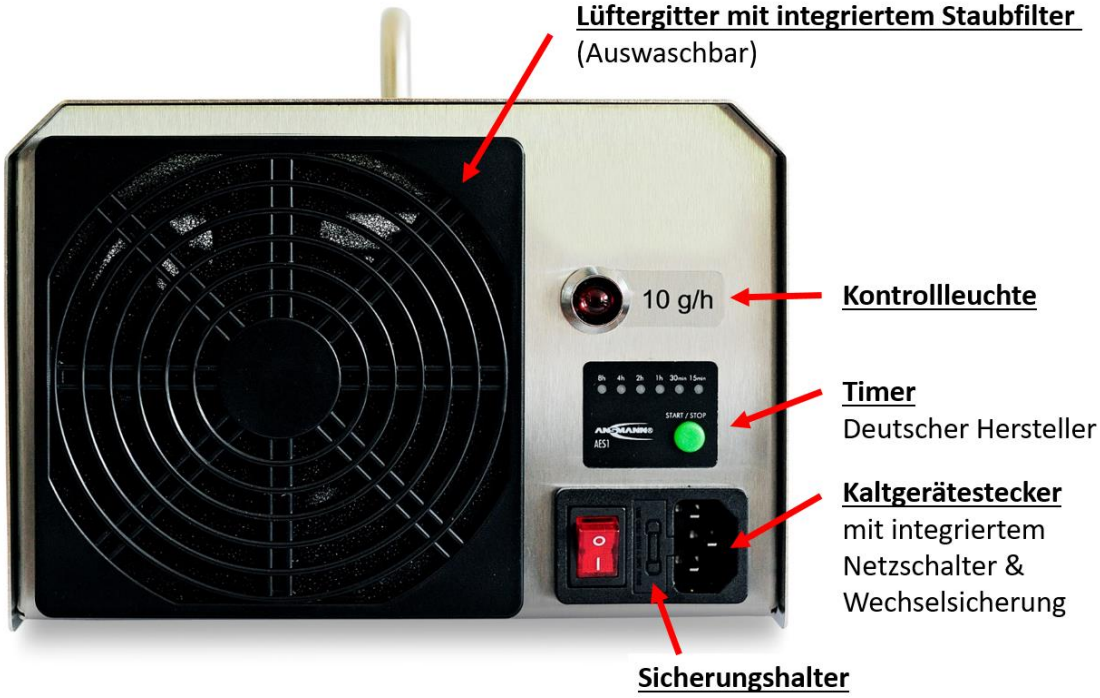

Figure 1 Overview of the controls (Figure TEN O3)

Before commissioning:

Please hermetically close all air inlets and outlets (doors & windows) of the treated area to prevent uncontrolled distribution of ozone. The room to be treated must be provided with warning signs to prevent unintentional entry into the rooms. The device must be placed in a firm and stable place.

Operation **(device type can be found on the manufacturer's label):**

1. Plug the supplied cold appliance power cable into the intended cold appliance connection and thus supply the appliance with power
2. Press the mains switch to "I" - a light comes on
3. Set the operating time by holding down the green button of the timer for 2 seconds, the green one will light up at 15 minutes. Each further press doubles the operating time up to a maximum of 8 hours.
4. Operating the remote control supplied:
   - For **TEN O_3 / TEN O_3 Plus** - Press "A" once to start the device (control lamp lights up)
     - "Press "B" once to switch off the device prematurely (control lamp extinguishes)
   - For **TWENTY O_3 / TWENTY O_3 Plus / THIRTY O_3 / THIRTY O_3 Plus** - „A“ einmalig drücken für den Start der ersten 10g/h **(TWENTY O_3 / TWENTY O_3 Plus)** bzw. 20g/h Ozonplatte **(THIRTY O_3 / TRIRTY O_3 Plus)** (obere Kontrollleuchte leuchtet auf)

- "Press "A" once to start the first 10g/h or 20g/h ozone plate (upper control lamp lights up).

- "Press "B" once to start the second 10g/h ozone plate (lower control lamp lights up)

To switch off prematurely, press the respective key again.

Figure 2 Representation of the remote control

5. Please affix signs or warning signs indicating that the room may not be entered during ozone treatment and may only be entered again after it has been cleared by authorised persons.
6. After the time has elapsed, the unit switches itself off automatically.

After commissioning:

Immediately after operation of the ozone generator, a high concentration of ozone is present in the treated room. In this case it is only possible to enter again as soon as the MAK value has dropped below 0.1ppm or 0.2mg/m3. Outside the Federal Republic of Germany, these values may differ. The MAK value can be determined exactly by means of an ozone measuring instrument. Ozone has a half-life of approx. 30 minutes. Thus, the regeneration time per device and per hour is 30 minutes. This means for example a 12 hour operation needs 6 hours regeneration time.

The time required to decompose the ozone depends on the following factors:

- air humidity
- application duration
- room size
- temperature

There must be sufficient ventilation!

4.4 Changing the fuse

The spare fuse is located in the fuse holder directly next to the mains switch, as shown in Figure 3. The fuse holder can be pushed out using a screwdriver. The front fuse is the replacement fuse and the rear fuse is the device fuse. The device fuse can be replaced by the spare fuse if necessary.

Use only slow 3A/250V fuses

Figure 3 Changing the fuse

5. Operating times

The operating time of the ozone generator strongly depends on the odour type and the odour intensity.

Indicative value for the duration of treatment:

	Treatment time*		
Room size	**short**	**medium**	**long**
Less than 25m^3	45 mins.	60 mins.	120 mins.
25m^3-50m^3	60 mins.	90 mins.	300 mins.
50m^3-100m^3	90 mins.	150 mins.	2-3 x 480 mins.
More than 100m^3	120 mins.	360 mins.	4-5 x 480 mins.
Odour type:	Car application	Smell of burning	Strong smell of burning
	Cigarette smoke	Chemical odour	Vomit
	Animal odour	Musty and mouldy odour	Cadaveric odour
	Waste smell		

*** for the device "TWENTY O3 (Plus)" the treatment time is halved and for the device "THIRTY O3 (Plus) the treatment time is divided by three.**

If the odour problem is still present after the proposed treatment period, it can be assumed that the treatment period was too short, the room temperature too low or the humidity too high. The ideal temperature during operation is between 5°C and 35°C. After the treatment and sufficient ventilation, the ozone smell can still be perceived for up to three more days in the treated room. However, this odour disappears completely and is harmless.

6. Maintenance

Die Ozongeräte sind wartungsarm, trotzdem bedarf es immer wieder einer visuellen.

The unit must be cleaned regularly from the outside, especially at the air inlets and outlets, as dust and dirt may accumulate there over time. In addition, the air filter must be cleaned at regular intervals to remove any sucked-in dirt by knocking it off, otherwise the performance of the unit will be reduced. The air filter is removed by dismantling the air filter cover, which is attached with clips.

After some time the performance of the ozone device decreases. The ozone plate is a wearing part, this is indicated by a reduced ozone generation.
In this case, the device must be sent to the manufacturer for replacement so that the ozone plate(s) can be replaced for a fee.

Figure 4 Air filter cover

Never clean the device with running water or a wet cloth!

7. Errors and troubleshooting

Instructions for use:

- The unit must be disconnected from the power supply if it is not used for a longer period of time.
- The ozone generator may only be operated within the permitted voltage range.

Malfunction	Ursache und Lösung
No power supply	1. Check that the plug is firmly inserted 2. Check if the ozone generator is switched on
No function	1. Check the fuse 2. Check if the timer is turned on
No ozone production	1. Check if the fan is running 2. Check inlet and outlet 3. Replace the ozone plate

8. Warranty and Disclaimer

This product has been designed and manufactured to the highest quality standards. If, contrary to expectations, the device shows a malfunction, please contact our customer service.

Warranty for this device
is 24 months from the date of purchase.

If the guarantee is claimed, the invoice shall be deemed to be the guarantee document.

Disclaimer of warranty
The following damages are excluded from the warranty.

Damage caused by:

- Force majeure
- misuse, including (but not limited to) non-compliance with the operating instructions
- Improper operation
- Repair and attempted repair by unauthorized persons
- Connection to an unsuitable power supply
- Use of the device in conjunction with third-party products

Opening the housing can affect electrical safety and must only be carried out by OSS personnel. Failure to do so will void the warranty and guarantee.
Any liability for personal injury and damage to property caused by the ozone generator being used and operated contrary to the instructions in this operating manual is excluded.

The ozone plate is a wear part with a limited service life and is excluded from warranty. Excluded from this warranty are defects caused by faulty production of the ozone plate. Damage must be reported immediately after purchase.

9. Technical data

Typ:	**TEN O_3**	**TEN O_3 Plus**	**TWENTY O_3**	**TWENTY O_3 Plus**	**THIRDY O_3**	**THIRDY O_3 Plus**
Connection:	220 – 240V 50/60 Hz	220 – 240V 50/60 Hz	220 – 240V 50/60 Hz	220 – 240V 50/60 Hz	220 – 240V 50/60 Hz	220 – 240V 50/60 Hz
Power:	120W	130W	210W	220W	270W	280W
Ozone output:	10 g/h	10 g/h	20 g/h	20 g/h	30 g/h	30 g/h
Production process:	Corona discharge	Corona discharge	Corona discharge	Corona discharge	Corona discharge	Corona discharge
Operating resources:	Ambient air	Ambient air	Ambient air	Ambient air	Ambient air	Ambient air
Operating temparature:	0 – 40°C	0 – 40°C	0 – 40°C	0 – 40°C	0 – 40°C	0 – 40°C
Case:	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Dimensions [mm]:	265x205x180	265x205x180	265x205x180	265x205x180	265x205x180	265x205x180
Weight:	3,4 Kg	3,8 Kg	3,9 Kg	4,3 Kg	4,4 Kg	4,8 Kg

Manufacturer in terms of § 3 Abs. 11 ElektroG

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The crossed-out wheeled bin symbol means that this product must not be treated as normal household waste and disposed of in the residual waste bin. Instead, this product should be taken to suitable disposal points (collection points) for electrical and electronic equipment. Electrical and electronic scrap is completely recycled and can be reused in new products. Correct disposal helps to reduce the mountains of waste and conserve nature's resources.

Notes