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O₃ONO

- Instructions for use
- Safety instructions
- Datasheet
- Warranty and seller data

Generators Manual

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GENERAL WARNINGS



Before using the devices for the first time, carefully read the instructions on use, techniques and safety that come with this manual. Store the manual for future use and easy reference. If the use and safety instructions are difficult or impossible to understand, please contact the person responsible for the technical dossier for assistance. Failure to comply with the rules regarding use and safety may be a source of danger and will void the warranty.



The packaging materials are recyclable. Please dispose of them in complete respect of the environment.



Electrical and electronic appliances contain valuable recyclable materials as well as materials that can pose a potential hazard to living beings and the environment. Devices marked with this symbol must not be disposed of with household waste.

This manual contains instructions for the handling, use and maintenance of the ozonator model **O3ONO**. The manual is divided into sections, each of which focuses on a series of topics, split into chapters and paragraphs. The general table of contents lists all the topics covered in the entire manual. The page numbering is consecutive, with the page number being shown on each page. This manual is intended for personnel responsible for handling, installing, using and maintaining the machine, and pertains to its technical life after its production, use and eventual sale. If it is subsequently sold to third parties for any reason (sale, hire-purchase use or any other reason), the machine must be delivered complete with all documentation. The information contained in this manual is not intended to and may not replace the knowledge and experience of the operators/users who will use the device (in any capacity), who are in any case solely responsible for the use for which the machine has been designed. Before beginning any operation on any unit of the machine, you must have at least read the entire manual and then thoroughly examined the topic concerning the operations intended to be carried out. This manual contains proprietary information and must not, even partially, be issued to third parties for any use or in any form without the prior written consent of Green Strategies S.r.l. Gre-

en Strategies S.r.l. declares that the information contained in this manual conforms with the technical and safety specifications of the machine to which the manual refers. A certified copy of this manual is filed in the machine's technical dossier, kept by Green Strategies S.r.l., which does not recognise any documentation not produced, issued or distributed by itself or its authorised representative. This manual, as well as the entire technical dossier, will be kept by the manufacturer for the period established by law. During this period, a copy of the documentation accompanying the product may be requested at the time of sale. For this period, the entire technical file will only remain available for the supervisory authorities, who may request a copy. After this period, those who manage the product must ensure that both the product and the documentation comply with the laws in force at the time of inspection.

The manufacturer assumes no responsibility for any difficulties that may be encountered in use or resale abroad, due to the provisions in force in the country where the machine was sold.

SYMBOLS IN THIS MANUAL



Electrical danger



Danger: mechanical parts in motion High risk of entanglement and/or injury.



General hazard



Prohibition to remove safety devices and guards



Prohibition. Actions that must absolutely not be carried out as they involve a high risk for things or people

DEFINITIONS


- **CE marking:** the process of preparing the technical dossier, containing the documentation of everything the producer/manufacturer/importer/agent has performed or verified to have been performed, in order to produce a safe product in compliance with European directives and standards.
- **CE marking:** affixing the CE marking on products released for free circulation, adopting various methods and supports.
- **Modification/Adjustment:** activities that alter the state of the product compared to the original, as defined by the manufacturer, resulting in the need to re-mark the product, in compliance with current laws.
- **Manufacturer:** anyone who releases a product in free circulation, indicating only their name on the accompanying documentation.
- **Directive:** a document issued by the European central authority and regulating the safety of a category of products. This must be implemented by every single state of the European Union in order to have legal value in said state.
- **Regulation:** a document issued by the European central authority which has legal value throughout the European Union, without the need for transposition by the individual states.
- **Standard:** a document issued by a private institution which has an indicative value regarding a good way of operating, bearing legal value only if supported by a specific governmental decree.
- **Harmonised standard:** a document issued by a private entity that is valid throughout European territory and has legal value where subject to a Regulation. Compliance with a standard is always and only the "presumption" of respecting a directive or regulation to which it is harmonised.
- **Declaration of conformity:** a document that must be issued and signed by the manufacturer


and has to accompany each product or batch of products.

- **CE label:** indications that must be present on the product or its packaging, showing in a concise manner that the manufacturer has fulfilled the safety obligations established by law.
- **CE certificate:** a document issued by a private body certifying that only one sample has passed certain tests. The certificate may be imposed by law or on a voluntary basis but it never replaces the CE marking, in that it makes no reference to serial production and can thus supplement but never replace the CE marking.
- **Machine/Device:** a set of mechanical and non-mechanical components of which at least one is mobile thanks to non-human or animal force, including if it has no applied energy source but is destined to be coupled with an energy source. The set of several machines, thus becoming "partly-completed machinery", becomes a machine in turn. Lifting systems, even if manual, are also covered by the Machinery Directive. "Machines" are also defined as systems or installations in which mechanisms are present, such as

operating electric pumps or electric motors, or in any case components falling within the scope of the Machinery Directive.

PRECAUTIONS AND GENERAL INFORMATION

- In maximum production mode, an ozonator generates from 5 to 120 g/h of ozone. Ozone has an exceptional antimicrobial effect on the entire spectrum of pathogenic microflora and is a universal, ecologically clean, effective and economical disinfectant.
- On the basis of its toxic parameters, the US Department of Labor's Occupational Safety and Health Administration issued an ozone exposure limit of 0.1 ppm (0.2 mg/m³) for 8 consecutive hours for a total of 40 working hours per week. This means that a worker can be exposed to higher ozone concentrations but once 8 hours have passed, exposure cannot exceed 0.1 ppm.
- It has been determined that the air within enclosed environments contains organic substances (vital organism products and technogenic activities). Compared to atmospheric air, the air indoors is very polluted. Ozonation contributes to cleaning the environment and the air within. Owing to the effect of ozonation, the concentration of toxic substances decreases, the pathogenic odours of microflora are eliminated, people's health improves and morbidity decreases. At room temperature, ozone rapidly disintegrates and transforms into oxygen. The Safety Data Sheet in this manual states that after treating the environment, it is necessary to wait 2.5-3 hours before re-entering, in order to ensure total decay of the ozone. If treatments are to be made in cold environments (below 15°C), it is necessary to install an ozone meter to check the residual values before returning to the treated environment.
- An ozonator must be used under the control of responsible, trained personnel and in strict compliance with the rules of application.
-  **DO NOT LEAVE THE DEVICES WITHIN THE REACH OF CHILDREN OR UNAUTHORISED PERSONS**

- The air within the treated environment must be treated without people or pets being present within it.
-  **BE CAREFUL!** The devices must be connected to earthing systems. The earthing system must be inspected by a qualified electrician. Do not insert the plug with wet hands, as this may cause an electric shock.
- The lighting system (natural or artificial) must ensure the minimum lighting value of 200 lux, in order to verify the proper steps necessary to activate the ozonator.
- This manual is intended for personnel operating the ozonator.
- Use of the ozonator is permitted solely to persons over 18 years of age and only after they have studied the device and its operating procedures, and received the corresponding training on the responsibility of production, the safety instructions and precautionary measures.
- People who have received medical advice against ozone use are not permitted to operate this device.

STRUCTURE OF AN OZONATOR

- **POWER SUPPLY:** 220-240 V
- **HANDLE:** on the top for easy movement
- **CONTROL PANEL:** depending on the models, the ozone production units have 1 to 4 control buttons
- **AIR INTAKE FAN:** The O3ONO series ozonator is not only able to generate ozone by treating the air inside the room but also to extract it from the outside by means of a flexible hose.
- **STEEL CASING WITH OZONE-RESISTANT COATING:** all components are made/coated with materials resistant to aggressive environments.
- **“O3ONO” QUARTZ TUBES:** supply high-quality ozone without nitrogen oxides.
- **OZONE FLOW ORIENTATION:** a 150 mm corrugated pipe can be inserted in the ozone expulsion nozzle, in order to convey the ozone flow in areas of particular need.

OZONATING EQUIPMENT PRESENT IN THE PACKAGING


1. **Ozone generator** - 1 pc.
2. **Timer - 1 pc.** – in some models, the timer is an integral part of the generator; in other models, the timer is placed on an intelligent socket included in the package
3. **User manual** (instructions for use; technical, safety and warranty information) - 1 pc.
4. **Power cable: 220 V** (it is forbidden to use the device without earthing!)

PREPARING THE ENVIRONMENT BEFORE TREATMENT



- To prevent the ozone from escaping from the environment subject to treatment, turn off any external ventilation, hermetically seal the doors and windows, and close off all empty spaces. In general, the sanitisation time and concentration of ozone treatments are not damaging to materials and equipment, if conducted in line with the recommended extents and concentrations. Nonetheless, certain materials have poor resistance to ozone (a non-exhaustive reference list, included only for convenient consultation, is shown on the next page). We recommend removing such items from the environment before starting treatment if repeated sanitisations will be made over time.
- If the ozonator has previously been used in an environment with a temperature below zero, it must be left in an area at room temperature for at least two hours before subsequent usage. In any case, DO NOT start operating the ozonator if it shows signs of condensation or frost.
- The environment to be treated must be dry, with humidity not exceeding 85% and without frost or condensation forming on the surfaces.


Non-exhaustive LIST OF COMMONLY-USED MATERIALS COMPATIBILITY WITH OZONE			
Plexiglass	Excellent	304 stainless steel	Good
PVC	Excellent	ABS	Good
EPDM (Ethylene Propylene Diene Monomer)	Excellent	Copper	Good
CPVC (Chlorinated Polyvinyl Chloride)	Excellent	Bronze	Good
Hypalon	Excellent	ABS	Good
Silicone	Excellent	Soft PVC	Good
316 stainless steel	Excellent	Polysulfone	Good
Polycarbonate	Excellent	Epoxy	Good
Kel-f	Excellent	Tygon®	Good
Viton®	Excellent	Neoprene	Good/moderate
Ceramics	Excellent	Untreated aluminium	Good/moderate
Titanium	Excellent	Polypropylene	Moderate
Hastelloy®-C (nickel-molybdenum-chromium alloy)	Excellent	Nickel plating	Moderate
Chrome plating	Excellent	Hytrel	Moderate
Glass	Excellent	Acetal Polyoxymethylene	Moderate
PCTFE (Polychlorotrifluoroethylene)	Excellent	Natural Rubber	Poor
Neoprene®	Excellent	Untreated iron	Poor
Hypalon® (Polyethylene Chlorosulfonate)	Excellent	Nylon	Poor
Teflon® (PTFE)	Excellent	Brass	Poor
Kynar® (PFDF)	Excellent	Santoprene®	Poor
Rigid PVC	Excellent	BUMA-N (nitrile rubber)	Poor


PROCEDURE FOR TURNING THE GENERATOR ON AND OFF (Steps 1-11)

-  The treatments, if performed in the ways, in the concentrations and in the expected times, are not aggressive for furnishings and IT devices sensitive to oxidative processes. Any damage that may arise is attributable to failure to comply with the recommended procedures and Green strategies declines all responsibility as it cannot control the correct application of the protocols provided in this manual.
- Close the windows and doors of the room subject to treatment.
- Position the generator in a central position within the environment to be treated, on a horizontal and dry surface, far from radiators or heat sources, without any nearby obstacles and possibly resting on a shelf or table (for models that allow raised positioning). If sanitising an environment comprised of several connected floors, place the generator on the highest floor, in a central position and oriented towards the connecting staircase.
- Plug in to the electrical socket, ensuring that it complies with safety regulations and that the device is earthed.
- Check the potential power of each model and adjust the minutes of operation, using the appropriate timer, based on the ratio "ozone production of the model used / cubic meters of environment to be treated". The tested sanitizing power of O3ONO machines is 35 cubic meters for every gram of ozone produced, in 1 hour of time. Following the parameters of this manual for choosing the model to use, the theoretical maximum concentration (without taking into account the half-life of ozone) is 14 ppm (parts per million) per cubic meter / h. In the respect of the generator power / volume parameters to be treated, an operating time interval of 30 to 60 minutes


is recommended for correct sanitization.


6.  **HAZARD WARNING! DO NOT HYPER-OZONE AN ENVIRONMENT! No additional benefits are obtained and there is a risk of over-saturation of ozone and subsequently, following its decay, of oxygen. Using a dedicated timer, check the potential of each model and adjust the minutes of operation, based on the ratio of "production of ozone for the model used/cubic metres of the environment to be treated".** In general, the sanitising power of **O3ONO** machines is 35 cubic metres per gram of ozone produced, over 1 hour of time.
 **WARNING! All people and pets must leave the room.**
7. Direct the airflow to the problem area (if any).
8. For models O3ONO5, O3ONO10 and O3ONO15, by turning and adjusting the timer, the machine automatically turns on and off when the timer reaches zero. By pressing the button (1) the machine switches on in continuous function excluding the timer. In all other models, switching on and off is programmed by the smart plug. By pressing the button (1), in all the remaining models the network connection will turn on and the fans will start to work: in the O3ONO3 model the network connection will be activated and at the same time the ozonation will be activated: in the models O3ONO20, O3ONO30, O3ONO40, O3ONO50 and O3ONO60 only the power connection is activated and the fans start to run WITHOUT ozone production: by pressing the button (1) in the models O3ONO70, O3ONO80, O3ONO90, O3ONO100, O3ONO110 and O3ONO120 the first 30gr / ozone production channel will also be activated.
9. Depending on the models, press the keys **(2) – (3) – (4)** – on the appliances to operate the other ozone production lines. **NB:** the ozone production lines **(2) – (3) – (4)** – can be activated as required, without having to follow the progression of buttons 2 to 4. Thus, for example, on the **O3ONO110** model, press button **(1)** to activate the power line and the ozonation line at 30 g/h, then subsequently press button **(4)** to activate the 20 g/h production line, leaving lines **(2)** and **(3)** turned off.

10.  Leave the area immediately after activating the generator, closing the access door to the environment being treated and placing a warning sign on the entrance door:
"Ozonator in operation – entry prohibited from to"


11.  USING THE TIMER FUNCTION, the generator switches off by itself at the end of the timed cycle: at room temperature, above 15 degrees, wait 2.5-3 hours for the complete decay of the ozone. Upon entering the treated area, it is advisable to open windows and external doors to ventilate the room. Only authorized personnel equipped with protective goggles and activated carbon masks, goggles and air respirators or specific protection against ozone, can enter the environment before complete decay. For a faster reduction of the ozone concentration, ventilation can be provided by opening the windows: in this case, the recommended minimum period of time to reduce the ozone concentration to the acceptable level is about 30 minutes. To ensure ventilation (opening the windows), only the equipped staff of service is allowed to enter, taking all precautions.

12.

 **WARNING! If you experience any irritation to the throat or eyes when inside the treated environment, immediately leave the area with the windows open, as clearly not enough time has passed to ensure the complete ozone decay or there has not been a sufficient replacement of air. Out in the open air, the symptoms should disappear in a few minutes.**

 **WARNING! If you still experience dizziness or irritation, read the safety recommendations in this manual and contact the local health services.**

OZONATOR MAINTENANCE

- An ozonator is designed for long-term operation and requires only very basic care. To ensure the device operates perfectly, it is necessary to: stabilise the voltage, avoid installing fuses of a different class to that indicated, clean the device regularly according to the instructions provided, avoid operation in the presence of condensation and/or humidity dripping into the exhaust tube, avoid violent impacts, falls, knocks, and so on.
- Keep the ozonator clean. Prevent dust from accumulating inside the ozonator and prevent insects from entering within (cockroaches, ants, etc.). Bear in mind that the accumulation of dust, intense cold (when operating at low temperatures) in the ozonator and the presence of insects can cause electrical faults and the breakdown of the ozonator. All ozonator cleaning operations must be carried out when the device is disconnected from the power source. Remove any dust from the internal volume of the ozonator from the electric fan side.
-  **HAZARD WARNING: DISCONNECT THE APPLIANCE FROM THE POWER SOURCE BEFORE PERFORMING ANY CLEANING AND/OR MAINTENANCE OPERATIONS**
- Be careful not to allow moisture and foreign bodies to enter the ozonator.
- If the ozonator stops working, maintenance must be carried out by specialists authorised by the manufacturer.

COMMON PROBLEMS AND SOLUTIONS

- The device should only be maintained and serviced by qualified personnel in order to prevent electric shock. Maintenance of the appliance must be carried out only when the generator is unplugged and after checking that there is no air pressure in the tubes.
- **Problem:** No power supply
Possible cause: The cable is damaged or the power is not 220 V
Solution: Replace the cable and connect the station to the 220 V/50 Hz power supply
Possible cause: The power socket is faulty
Solution: Connect the device to another socket
- **Problem:** One or more electric charging modules do not turn blue
Cause: The electric charging elements are defective
Solution: Replace
- **Problem:** The ozonator's external housing transmits electricity
Possible cause: The housing is not earthed or there is no protective earthing of the power supply
Solution: Use an earthed plug
- **Possible cause:** The percentage of humidity in the environment is extremely high
Solution: Install the ozonator in a dry area.

INFORMATION ON PACKAGING, TRANSPORT AND STORAGE

1. Together with all accompanying documentation, an ozonator is placed in a polyethylene case and packed in a wooden crate.
2. Once packaged as described in Point 1, the ozonators can be transported at temperatures between -20 and +50°C via any means of transport, ensuring their packaging is safe from mechanical damage and the influence of atmospheric condensation, as well as following the regulations in force regarding the type of commercial transport used for carrying goods.
3. The ozonators must be stored in environments at temperatures from +5° to +40°C and relative humidity not higher than 85%, without condensation, at a distance of at least 1 metre from heating systems. The air in the room must not contain impurities that could cause corrosion and damage to the ozonator's electronic components (e.g. acid or chlorine vapours that can corrode the components and/or oxidise the contacts).
4. The ozonators are not built to withstand rain, indirect water or immersion (IP Protection Class: 00AW).

	MEN		WOMEN	
AGE	OCCASIONAL	FREQUENT	OCCASIONAL	FREQUENT
16 - 18	19	14	12	9
18 - 20	23	17	14	10
20 - 35	25	19	15	11
35 - 50	21	16	13	10
Over 50	16	12	10	7

	PREGNANT WOMEN	
MONTHS	OCCASIONAL	FREQUENT
FIRST 6 MONTHS OF PREGNANCY	10	5
FROM THE 7TH MONTH	0	0

Approximate values for maximum weight (in kg) to be lifted for occasional or frequent elevation/moving

MODELS AND PROVISIONS

Examples of calculating the time of application calculated in cubic metres (width x length x height) according to the models

O3ONO3 – SUITABLE FOR ENVIRONMENTS FROM 52.5 CUBIC METRES TO 105 CUBIC METRES



1. Power button for fan and ozonator 3 g/h
2. Electrical connection
3. Air intake fan
4. Handle for moving or lifting
5. NB: timer placed on the intelligent electric socket (included)

O3ONO3: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITIZE AN ENVIRONMENT
Formula for calculating the operating time of the generator in relation to the cubic meters "X" of an environment.

Max = maximum sanitation capacity of the ozonation line on, in 60 minutes

T = time

X = cubic metres to be sanitised

Max.: $60 = X:T$

If we were to sanitise 80 cubic metres "X", the calculation is as follows:

$105:60 = 80:T$ $T = 60 \times 80 / 105$ which is equal to 46 minutes

O3ONO5 – SUITABLE FOR ENVIRONMENTS FROM 87.5 CUBIC METRES TO 350 CUBIC METRES



1. Button switches on the fan power and the 5 grams / h ozone generation, in continuous mode
2. Timer 0-60 minutes
3. Electrical connection
4. Air intake fan
5. Handle for moving or lifting

O3ONO5: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITIZE AN ENVIRONMENT IN CONTINUOUS OPERATION AND IN OPERATION WITH TIMER

OPERATION WITHOUT TIMER (continuous production)

To use the generator in continuous mode, press the button (1): the generator will start and the ozonation equal to 5 gr / hour will start to work. To stop it, deactivate the button (1).

OPERATION WITH TIMER

Turn the timer adjusting it to the minutes necessary for the desired sanitation (see next formula) WITHOUT ACTIVATING THE BUTTON (1): the generator will start and ozonation will begin. When the timer reaches zero the generator will stop.

Formula for calculating the operating time of the generator in relation to the cubic meters "X" of an environment

Max = maximum sanitation capacity of the ozonation line on, in 60 minutes

T = time

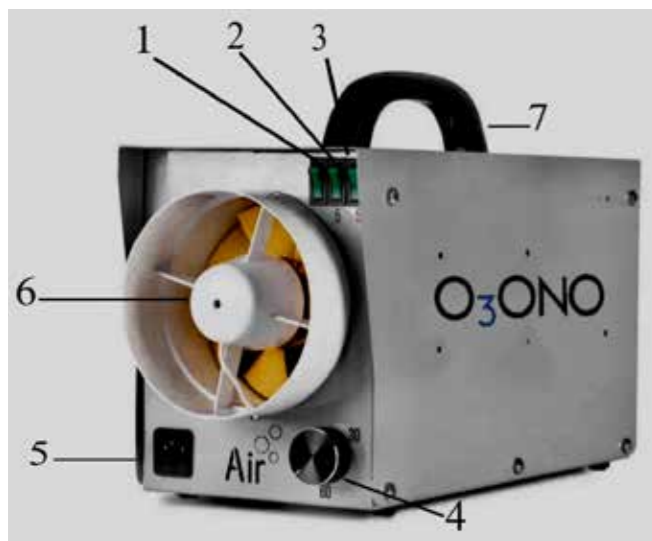
X = cubic metres to be sanitised

Max.: $60 = X:T$

If we were to sanitise 100 cubic metres "X", the calculation is as follows:

$175:60 = 100:T$ $T = 60 \times 100 / 175$ which is equal to 35 minutes

O3ONO10 – SUITABLE FOR ENVIRONMENTS FROM 87.5 CUBIC METRES TO 350 CUBIC METRES



1. Button switches on the the fan function in continuous mode, without ozone generation
2. Button to turn on the ozonation line at 5 g/h
3. Button to turn on the ozonation line at 5 g/h
4. Timer 0-60 minutes
5. Electrical connection
6. Air intake fan
7. Handle for moving or lifting

O3ONO10: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITIZE AN ENVIRONMENT WITH PARTIALIZED OPERATION OF THE O3ONO10 MODEL IN CONTINUOUS FUNCTION AND IN OPERATION WITH TIMER

Attention: for correct use, refer to the PROCEDURE FOR SWITCHING ON AND SWITCHING OFF THE OZONE GENERATORS in this manual.

OPERATION WITHOUT TIMER (continuous production)

(a) By activating the power and the fan with the button (1), the generator is activated in continuous mode, BUT DOES NOT ACTIVATE OZONE PRODUCTION; pressing the button (2) activates the first ozone production line, equal to 5gr / h: the minimum cubic meter that can be sanitized is 87.5 cubic meters in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meter (Max) of production of the 5 gr / h line is 175 cubic meters in 60 minutes (maximum recommended time for the operation of the generator). By pressing the button (3) you activate an additional production of 5 grams of ozone in 1 hour. In this case the minimum cubic meters that can be sanitized in half an hour is equal to 87.5 and the maximum cubic meters that can be sanitized in 1 hour are equal to 350 (175+175).

TIMER OPERATION - without pressing the button (1)

(a) By adjusting the timer to the selected minutes of operation, the fan automatically starts to turn, without the button (1) having been activated: pressing the button (2) activates the first ozone production line, equal to 5 gr / h. The minimum cubic meters that can be sanitized is 87.5 cubic meters in half an hour (minimum recommended time to inactivate even the most resistant viruses) and the maximum (Max) production line of 5 gr / h is 175 cubic meters in 60 minutes (maximum recommended time for generator operation). When the timer reaches zero the generator stops. Any time to sanitize the cubic meter between 87.5 cubic meters and 175 cubic meters can be calculated as explained as it follows:

(c) Formula for calculating the operating time of the generator in relation to cubic meters of an "X" environment.

Max = maximum sanitation capacity of the ozonation line on, in 60 minutes, T = necessary time, Y = cubic meters to be sanitized FORMULA:

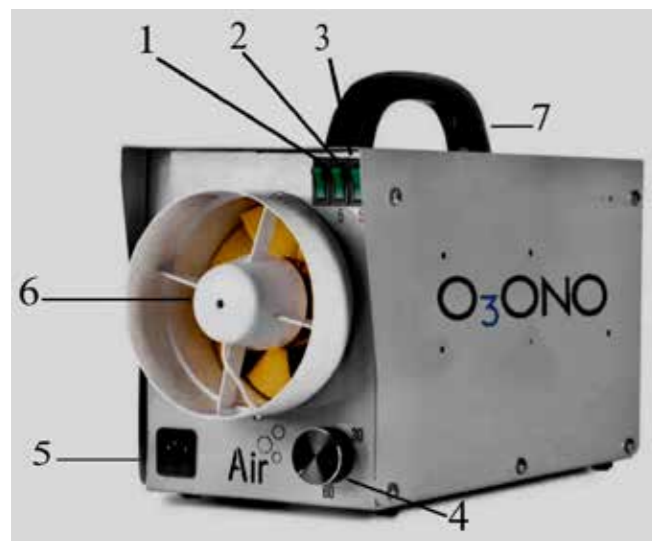
Max: 60 = Y: T In the case described above, for example Y = 140 cubic meters (value between 87.5 and 175 cubic meters) the formula is:

175: 60 =140: T T = 140* 60/175 which is equal to 48 minutes

(b) By activating the button (3), you add to the 5 gr / h line - already switched on - an additional 5 gr / h line: with the two ozone production lines switched on, the minimum cubic meters that can be sanitized in 30 minutes is 87.5 + 87.5 cubic meters = 175 cubic meters, while the maximum volume that can be sanitized in 60 minutes is (Max) 350 cubic meters (175 + 175).

NB: the button (3) can also be activated WITHOUT activating the button line (2).

O3ONO15 – SUITABLE FOR ENVIRONMENTS FROM 87.5 CUBIC METRES TO 525 CUBIC METRES



1. Button switches on the the fan function in continuous mode, without ozone generation
2. Button to turn on the ozonation line at 5 g/h
3. Button to turn on the ozonation line at 10 g/h
4. Timer 0-60 minutes
5. Electrical connection
6. Air intake fan
7. Handle for moving or lifting

O3ONO15: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITIZE AN ENVIRONMENT WITH PARTIALIZED OPERATION OF THE O3ONO15 MODEL IN CONTINUOUS FUNCTION AND IN OPERATION WITH TIMER

Attention: for correct use, refer to the PROCEDURE FOR SWITCHING ON AND SWITCHING OFF THE OZONE GENERATORS in this manual.

OPERATION WITHOUT TIMER (continuous production)

(a) By activating the power and the fan with the button (1), the generator is activated in continuous mode, BUT DOES NOT ACTIVATE OZONE PRODUCTION; pressing the button (2) activates the first ozone production line, equal to 5gr / h: the minimum cubic meter that can be sanitized is 87.5 cubic meters in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meter (Max) of production of the 5 gr / h line is 175 cubic meters in 60 minutes (maximum recommended time for the operation of the generator). By pressing the button (3) you activate an additional production of 10 grams of ozone in 1 hour. In this case the minimum cubic meters that can be sanitized in half an hour is equal to 87.5 and the maximum cubic meters that can be sanitized in 1 hour are equal to 525 (175+350).

TIMER OPERATION - without pressing the button (1)

(a) By adjusting the timer to the selected minutes of operation, the fan automatically starts to turn, without the button (1) having been activated: pressing the button (2) activates the first ozone production line, equal to 5 gr / h. The minimum cubic meters that can be sanitized is 87.5 cubic meters in half an hour (minimum recommended time to inactivate even the most resistant viruses) and the maximum (Max) production line of 5 gr / h is 175 cubic meters in 60 minutes (maximum recommended time for generator operation). When the timer reaches zero the generator stops. Any time to sanitize the cubic meter between 87.5 cubic meters and 175 cubic meters can be calculated as explained as it follows: Formula for calculating the operating time of the generator in relation to cubic meters of an "X" environment. Max = maximum sanitation capacity of the ozonation line on, in 60 minutes, T = necessary time, Y = cubic meters to be sanitized FORMULA: $Max \cdot 60 = Y \cdot T$
In the case described above, for example Y = 140 cubic meters (value between 87.5 and 175 cubic meters) the formula is: $175 \cdot 60 = 140 \cdot T$
 $T = 140 \cdot 60 / 175$ T = 48 minutes

(b) By activating the button (3), you add to the 5 gr / h line - already switched on - an additional 10 gr / h line: with the two ozone production lines switched on, the minimum cubic meters that can be sanitized in 30 minutes is 87.5 + 175 cubic meters = 262.5 cubic meters, while the maximum volume that can be sanitized in 60 minutes is (Max) 525 cubic meters (175 + 350).

NB: the button (3) can also be activated WITHOUT activating the button line (2).

O3ONO20 – SUITABLE FOR ENVIRONMENTS FROM 175 CUBIC METRES TO 700 CUBIC METRES



1. Button to turn on the power and fan without ozonation
2. Button to turn on the ozonation line at 10 g/h
3. Button to turn on the ozonation line at 10 g/h
4. Air intake fan
5. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO20: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO20 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button **(1)** as the first step necessary to turn on the generator, the power and fans are activated BUT NOT THE PRODUCTION OF OZONE. Activating button **(2)** starts the first ozone production line, equal to 10 g/h. The minimum cubic meterage that can be sanitised is 175 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage **(Max.)** of production for the 10 g/h line is 350 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitisation capacity of the ozonation line in 60 minutes when turned on

T = time required Y = cubic metres to be sanitised FORMULA: Max.: 60 = Y:T

In the case described above, for example, Y = 260 cubic metres (value between 175 and 350 cubic metres) the formula is: 350:60 = 260:T T = 260x60/350 T = 45 minutes

(b) By activating button **(3)**, we add to the 10 g/h line (already on) an additional line of 10 g/h. With the two ozone production lines, the minimum cubic meterage that can be sanitised in 30 minutes is 350 cubic metres (175+175), whilst the maximum cubic meterage sanitisable in 60 minutes is **(Max.)** 700 cubic metres (350+350). Any meterage between 350 cubic metres and 700 cubic metres can be calculated as explained in point **(a)**.

NB: button **(3)** can also be activated **WITHOUT** activating the line of button **(2)**

O3ONO30 – SUITABLE FOR ENVIRONMENTS FROM 175 CUBIC METRES TO 1050 CUBIC METRES



1. Button to turn on the power and fan without ozonation
2. Button to turn on the ozonation line at 10 g/h
3. Button to turn on the ozonation line at 20 g/h
4. Fan
5. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO30: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO30 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, the power and fans are activated BUT NOT THE PRODUCTION OF OZONE. Activating button (2) starts the first ozone production line, equal to 10 g/h. The minimum cubic meterage that can be sanitised is 175 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) of production for the 10 g/h line is 350 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitisation capacity of the ozonation line in 60 minutes when turned on

T = time required Y = cubic metres to be sanitised FORMULA: Max.: 60 = Y:T

In the case described above, for example, Y = 240 cubic metres (value between 175 and 350 cubic metres)

the formula is: 350:60 = 240: T = 240x60/350 T = 42 minutes

(b) By activating button (3), we add to the 10 g/h line (already on) an additional line of 15 g/h. With the two ozone production lines, the minimum cubic meterage that can be sanitised in 30 minutes is 437.5 cubic metres (175+262.5), whilst the maximum cubic meterage sanitisable in 60 minutes is (**Max.**) 1050 cubic metres (350+700). Any meterage between 437.5 cubic metres and 1050 cubic metres can be calculated as explained in point (a).

NB: button (3) can also be activated **WITHOUT** turning on the line of button (2)

O3ONO40 – SUITABLE FOR ENVIRONMENTS FROM 350 CUBIC METRES TO 1400 CUBIC METRES



1. Button to turn on the power/fans without ozonation
2. Button to turn on the ozonation line at 20 g/h
3. Button to turn on the ozonation line at 20 g/h
4. 5. Air intake fans
6. Electrical connection
7. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO40: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO40 MODEL

Warning: for correct use, please refer to the **PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF** in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, the power and fans are activated BUT NOT THE PRODUCTION OF OZONE. Activating button (2) starts the first ozone production line, equal to 20 g/h. The minimum cubic meterage that can be sanitised is 350 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) of production for the 20 g/h line is 700 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitisation capacity of the ozonation line in 60 minutes when turned on

T = time required Y = cubic metres to be sanitised FORMULA: Max.: 60 = Y:T

In the case described above, for example Y = 600 cubic metres (value between 350 and 700 cubic metres)

the formula is: 700:60 = 600:T T = 600x60/700 T = 52 minutes

(b) By activating button (3), we add to the 20 g/h line (already on) an additional line of 20 g/h. With the two ozone production lines, the minimum cubic meterage that can be sanitised in 30 minutes is 700 cubic metres (350+350), whilst the maximum cubic meterage sanitisable in 60 minutes is (**Max.**) 1400 cubic metres (700+700). Any meterage between 700 cubic metres and 1400 cubic metres can be calculated as explained in point (a).

NB: button (3) can also be activated **WITHOUT** turning on the line of button (2)

O3ONO50 – SUITABLE FOR ENVIRONMENTS FROM 350 CUBIC METRES TO 1750 CUBIC METRES



1. Button to turn on the power/fans without ozonation
2. Button to turn on the ozonation line at 20 g/h
3. Button to turn on the ozonation line at 30 g/h
4. 5. Air intake fans
6. Electrical connection
7. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO50: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO50 MODEL

Warning: for correct use, please refer to the **PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF** in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, the power and fans are activated BUT NOT THE PRODUCTION OF OZONE. Activating button (2) starts the first ozone production line, equal to 20 g/h. The minimum cubic meterage that can be sanitised is 350 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) of production for the 20 g/h line is 700 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitisation capacity of the ozonation line in 60 minutes when turned on

T = time required Y = cubic metres to be sanitised FORMULA: $Max.: 60 = Y:T$

In the case described above, for example Y = 600 cubic metres (value between 350 and 700 cubic metres)

the formula is: $700:60 = 600:T$ $T = 600 \times 60 / 700$ $T = 52$ minutes

(b) By activating button (3), we add to the 20 g/h line (already on) an additional line of 20 g/h. With the two ozone production lines, the minimum cubic meterage that can be sanitised in 30 minutes is 700 cubic metres (350+350), whilst the maximum cubic meterage sanitisable in 60 minutes is (**Max.**) 1400 cubic metres (700+700). Any meterage between 700 cubic metres and 1400 cubic metres can be calculated as explained in point (a).

NB: button (3) can also be activated **WITHOUT** turning on the line of button (2)

O3ONO60 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 2100 CUBIC METRES



1. Button to turn on the power/fans without ozonation
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 30 g/h
4. 5. Air intake fans
6. Electrical connection
7. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO60: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO60 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button **(1)** as the first step necessary to turn on the generator, the power and fans are activated BUT NOT THE PRODUCTION OF OZONE. Activating button **(2)** starts the first ozone production line, equal to 30 g/h. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage **(Max.)** of production for the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitisation capacity of the ozonation line in 60 minutes when turned on

T = time required Y = cubic metres to be sanitised FORMULA: Max.: 60 = Y:T

In the case described above, for example Y = 850 cubic metres (value between 525 and 1050 cubic metres)

the formula is: 1050:60 = 850:T T = 850x60/1050 T = 49 minutes

(b) By activating button **(3)**, we add to the 30 g/h line (already on) an additional line of 30 g/h. With the two ozone production lines, the minimum cubic meterage that can be sanitised in 30 minutes is 1050 cubic metres (525+525), whilst the maximum cubic meterage sanitisable in 60 minutes is **(Max.)** 2100 cubic metres (1050+1050). Any meterage between 1050 cubic metres and 2100 cubic metres can be calculated as explained in point **(a)**.

NB: button **(3)** can also be activated **WITHOUT** activating the line of button **(2)**

O3ONO70 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METERS TO 2450 CUBIC METRES



1. Button to turn on the power/fans + ozonation line at 30 g/h
2. Button to turn on the ozonation line at 20 g/h
3. Button to turn on the ozonation line at 20 g/h
4. 5. 6. Air intake fans
7. Electrical connection
8. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO70: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO70 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, the power and fans are activated simultaneously along with the production of ozone at 30 g/h. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (Max.) of production for the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitising capacity of the ozonation line in 60 minutes **T** = time required **Y** = cubic meterage to be sanitised
FORMULA: Max.: 60 = Y:T In the case described above, with Y = 850 (value between 525 and 1050) the formula is:
 $1050:60 = 850:T$ $T = 850 \times 60 / 1050$ $T = 49$ minutes

(b) By activating button (2), we add to the 30 g/h line (already on) an additional line of 20 g/h. In this case, the minimum cubic meterage that can be sanitised in 30 minutes is 525+350 cubic metres = 875 cubic metres, whilst the maximum cubic meterage sanitisable in 60 minutes is **(Max.)** 1750 cubic metres (1050+700). Any meterage between 875 cubic metres and 1750 cubic metres can be calculated as explained in point (a).

(c) By activating button (3), we add an additional 20 g/h production line. In this case, the minimum production in 30 minutes is 1225 cubic metres (525+350+350) and the maximum cubic meterage that can be sanitised in 60 minutes is **(Max.)** 2450 cubic metres (1050+700+700). Any meterage between 1225 cubic metres and 2450 cubic metres can be calculated as explained in point (a).

NB: button (3) can also be activated **WITHOUT** activating the line of button (2)

O3ONO80 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 2800 CUBIC METRES



1. Button to turn on the power/fans + ozonation line at 30 g/h
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 20 g/h
4. 5. 6. Air intake fans
7. Electrical connection
8. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO80: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO80 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button **(1)** as the first step necessary to turn on the generator, the power and fans are activated simultaneously along with the production of ozone at 30 g/h. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (Max.) of production for the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".
Max = maximum sanitising capacity of the ozonation line in 60 minutes **T** = time required **Y** = cubic meterage to be sanitised
FORMULA: $Max.: 60 = Y:T$ In the case described above, with **Y = 850** (value between 525 and 1050) the formula is:
 $1050:60 = 850:T$ $T = 850 \times 60 / 1050$ **T = 49 minutes**

(b) By activating button **(2)**, we add to the 30 g/h line (already on) an additional line of 30 g/h. In this case, the minimum cubic meterage that can be sanitised in 30 minutes is 525+525 cubic metres = 1050 cubic metres, whilst the maximum cubic meterage sanitisable in 60 minutes is **(Max.)** 2100 cubic metres (1050+1050). Any meterage between 1050 cubic metres and 2100 cubic metres can be calculated as explained in point **(a)**.

(c) By activating button **(3)**, we add an additional 20 g/h production line. In this case, the minimum production in 30 minutes is 1400 cubic metres (525+525+350) and the maximum cubic meterage that can be sanitised in 60 minutes is **(Max.)** 2800 cubic metres (1050+1050+700). Any meterage between 1400 cubic metres and 2800 cubic metres can be calculated as explained in point **(a)**.

NB: button **(3)** can also be activated **WITHOUT** activating the line of button **(2)**

O3ONO90 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 3150 CUBIC METRES



1. Button to turn on the power/fans + ozonation line at 30 g/h
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 30 g/h
4. 5. 6. Air intake fans
7. Electrical connection
8. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO90: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO90 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, the power and fans are activated simultaneously along with the production of ozone at 30 g/h. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) of the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitising capacity of the ozonation line in 60 minutes T = time required Y = cubic meterage to be sanitised FORMULA: $Max.: 60 = Y:T$ In the case described above, with Y = 850 (value between 525 and 1050) the formula is: $1050:60 = 850:T$ $T = 850 \times 60 / 1050$ T = 49 minutes

(b) By activating button (2), we add to the 30 g/h line (already on) an additional line of 30 g/h. In this case, the minimum cubic meterage that can be sanitised in 30 minutes is 525+525 cubic metres = 1050 cubic metres, whilst the maximum cubic meterage sanitisable in 60 minutes is 2100 cubic metres (1050+1050). Any meterage between 1050 cubic metres and 2100 cubic metres can be calculated as explained in point (a).

(c) By activating button (3), we add an additional 30 g/h production line. In this case, the minimum production in 30 minutes is 1575 cubic metres (525+525+525) and the maximum cubic meterage that can be sanitised in 60 minutes is (**Max.**) 3150 cubic metres (1050+1050+1050). Any meterage between 1575 cubic metres and 3150 cubic metres can be calculated as explained in point (a).

NB: button (3) can also be activated **WITHOUT** activating the line of button (2)

O3ONO100 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 3500 CUBIC METRES



1. Button to turn on the power/fans + ozonation at 30 g/h
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 20 g/h
4. Button to turn on the ozonation line at 20 g/h
5. 6. 7. 8. Air intake fans
9. Electrical connection
10. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO100: ESEMPIO DI CALCOLO DEL TEMPO NECESSARIO A SANIFICARE UN AMBIENTE CON FUNZIONAMENTO PARZIALIZZATO DEL MODELLO O3ONO100

Attenzione: per l'uso corretto fare riferimento alla PROCEDURA DI ACCENSIONE E SPEGNIMENTO DEI GENERATORI DI OZONO presente in questo manuale.

(a) Attivando la rete e le ventole con il pulsante (1) – primo passo necessario per l'attivazione del generatore -, anche la linea di produzione ozono da 30 gr/h si attiva: la metratura cuba minima che si può sanificare è di 525 metri cubi in mezza ora (tempo minimo consigliato per inattivare anche i virus più resistenti) ; la metratura cuba massima (Max) della linea da 30 gr/h è di 1050 metri cubi in 60 minuti (tempo massimo consigliato per il funzionamento del generatore).

Formula di calcolo del tempo di funzionamento del generatore in rapporto ai metri cubi di un ambiente "X".

Max = capacità massima di sanificazione della linea di ozonizzazione in 60 minuti T = tempo necessario Y = metratura cuba da sanificare FORMULA: $Max:60 = Y:T$ Nel caso sopra descritto, fatto $Y = 850$ (valore compreso fra 525 e 1050) la formula é: $1050:60=850:T$ $T=850*60/1050$ $T=49$ minuti

(b) Attivando il pulsante (2), aggiungiamo alla linea da 30 gr/h - già accesa - un'ulteriore linea da 30 gr/h: in questo caso la metratura cuba minima che si può sanificare in 30 minuti è di 525+525 metri cubi = 1050 metri cubi, mentre la cubatura massima sanificabile in 60 minuti è di (Max) 2100 metri cubi (1050+1050). Ogni metratura compresa fra 1050 metri cubi e 2100 metri cubi può essere calcolata come spiegato al punto (a). (c) Attivando il pulsante (3) aggiungiamo un'ulteriore linea di produzione da 20 gr/h. In questo caso la produzione minima (in 30 minuti) è di 1400 metri cubi (525+525+350) metri cubi e la metratura cuba massima sanificabile in 60 minuti è di (Max) 2800 metri cubi (1050+1050+700). Ogni metratura compresa fra 1400 metri cubi e 2800 metri cubi può essere calcolata come spiegato al punto (a). (d) Attivando il pulsante (4) aggiungiamo un'ulteriore linea da 20 gr/h. La metratura cuba minima sanificabile in 30 minuti è di 1750 mt cubi (525+525+350+350), quella massima sanificabile in 60 minuti è di (Max) 3500 mt. cubi (1050+1050+700+700). Ogni metratura compresa fra 1750 mt. cubi e 3500 mt. cubi può essere calcolata come spiegato al punto (a).

NB: il pulsante (2) - (3) - (4) possono essere attivati in modo indipendente, senza dover seguire l'ordine a crescere.

O3ONO110 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 3850 CUBIC METRES



1. Button to turn on the power/fans + ozonation at 30 g/h
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 30 g/h
4. Button to turn on the ozonation line at 20 g/h
5. 6. 7. 8. Air intake fans
9. Electrical connection
10. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO110: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO110 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, ozone production at 30 g/h is also activated. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) of the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitising capacity of the ozonation line in 60 minutes T = time required Y = cubic meterage to be sanitised FORMULA: Max.: 60 = Y:T In the case described above, with Y = 850 (value between 525 and 1050) the formula is: 1050:60 = 850:T T = 850x60/1050 T = 49 minutes

(b) By activating button (2), we add to the 30 g/h line (already on) an additional line of 30 g/h. In this case, the minimum cubic meterage that can be sanitised in 30 minutes is 525+525 cubic metres = 1050 cubic metres, whilst the maximum cubic meterage sanitisable in 60 minutes is (**Max.**) 2100 cubic metres (1050+1050). Any meterage between 1050 cubic metres and 2100 cubic metres can be calculated as explained in point (a). (c) By activating button (3), we add an additional 30 g/h production line. In this case, the minimum production in 30 minutes is 1575 cubic metres (525+525+525) and the maximum cubic meterage that can be sanitised in 60 minutes is (**Max.**) 3150 cubic metres (1050+1050+1050). Each meterage ranging between 1575 cubic metres and 3150 cubic metres can be calculated as explained in point (a). (d) By activating button (4), we add an additional 20 g/h line. The minimum cubic meterage that can be sanitised in 30 minutes is 1925 cubic metres (525+525+525+350), whilst the maximum sanitisable area in 60 minutes is (**Max.**) 3850 cubic metres (1050+1050+1050+700). Any meterage between 1925 cubic metres and 3850 cubic metres can be calculated as explained in point (a).

NB: buttons (2) - (3) - (4) can be activated independently, without having to go in order of progression.

O3ONO120 – SUITABLE FOR ENVIRONMENTS FROM 525 CUBIC METRES TO 4200 CUBIC METRES



1. Button to turn on the power/fans + ozonation at 30 g/h
2. Button to turn on the ozonation line at 30 g/h
3. Button to turn on the ozonation line at 30 g/h
4. Button to turn on the ozonation line at 30 g/h
5. 6. 7. 8. Air intake fans
9. Electrical connection
10. Handle for moving or lifting

NB: timer placed on the intelligent power socket (included)

O3ONO120: EXAMPLE OF CALCULATING THE TIME NECESSARY TO SANITISE AN ENVIRONMENT WITH PARTIAL OPERATION OF THE O3ONO120 MODEL

Warning: for correct use, please refer to the PROCEDURE FOR TURNING THE OZONE GENERATOR ON AND OFF in this manual.

(a) By activating the power and fans with button (1) as the first step necessary to turn on the generator, ozone production at 30 g/h is also activated. The minimum cubic meterage that can be sanitised is 525 cubic metres in half an hour (minimum recommended time to inactivate even the most resistant viruses); the maximum cubic meterage (**Max.**) for the 30 g/h line is 1050 cubic metres in 60 minutes (maximum recommended time for generator operation).

Formula for calculating the generator's operating time in relation to the cubic metres of an environment "X".

Max. = maximum sanitising capacity of the ozonation line in 60 minutes T = time required Y = cubic meterage to be sanitised FORMULA: $Max.: 60 = Y:T$ In the case described above, with Y = 850 (value between 525 and 1050) the formula is: $1050:60 = 850:T$ $T = 850 \times 60 / 1050$ T = 49 minutes

(b) By activating button (2), we add to the 30 g/h line (already on) an additional line of 30 g/h. In this case, the minimum cubic meterage that can be sanitised in 30 minutes is 525+525 cubic metres = 1050 cubic metres, whilst the maximum cubic meterage sanitisable in 60 minutes is (**Max.**) 2100 cubic metres (1050+1050). Any meterage between 1050 cubic metres and 2100 cubic metres can be calculated as explained in point (a). (c) By activating button (3), we add an additional 30 g/h production line. In this case, the minimum production in 30 minutes is 1575 cubic metres (525+525+525) and the maximum cubic meterage that can be sanitised in 60 minutes is (**Max.**) 3150 cubic metres (1050+1050+1050). Each meterage ranging between 1575 cubic metres and 3150 cubic metres can be calculated as explained in point (a). (d) By activating button (4), we add an additional 30 g/h line. The minimum cubic meterage that can be sanitised in 30 minutes is 2100 cubic metres (525+525+525+525), whilst the maximum sanitisable area in 60 minutes is (**Max.**) 4200 cubic metres (1050+1050+1050+1050). Any meterage between 2100 cubic metres and 4200 cubic metres can be calculated as explained in point (a).

NB: buttons (2) - (3) - (4) can be activated independently, without having to go in order of progression.

OPTIONAL FILTERS FOR OPERATING OZONE GENERATORS IN VERY DUSTY OR GREASY ENVIRONMENTS

The filters can be combined with the ozonators directly (male-female interlocking) or through a corrugated connection (included in the package) that allows the filters to be positioned outside the environment in order to introduce clean air into the ozonators, optimising their yield.



SAFETY REGULATIONS

OZONE (O₃) SAFETY DATA SHEET

Identification – Chemical name: Ozone

Chemical formula: O₃

Type of product and use: CAS oxidising agent no. 10028-15-6

Chemical-physical properties

Unstable gas, light blue in colour with a sharp and pungent odour, perceptible at concentrations as low as 0.02 ppm.

It solidifies at a temperature of -193°C and boils at -112°C.

It has a relative density of 2.144 g/l and a molecular weight of 48.00.

Soluble in methanol and chlorofluorocarbons in equal volumes; modestly soluble in water.

STABILITY AND REACTIVITY

The product is unstable, very aggressive and a powerful oxidant (second only to fluorine).

HAZARDS IDENTIFICATION

Ozone is a strong oxidising agent, reacting violently with oxidisable organic compounds such as benzene, ethylene, dienes and alkanes. The flash point of ozone is -18°C.

Both in solid and liquid form, it creates highly explosive mixtures.

Equally violent and explosive reactions occur when it comes into contact with bromine, hydrobromic acid, nitrogen oxides and nitroglycerine.

The product causes skin and eye redness, respiratory irritation, and can cause eye damage.

There are exposure limits in place regarding concentrations of ozone in the air to which workers are exposed:

TLV-TWA (ACGIH): 0.1 ppm (0.2 mg/m³)

TLV-STEL (ACGIH): 0.3 ppm (0.6 mg/m³)

The olfactory threshold for ozone is 0.05 ppm, about four times lower than the current TLVSTEL and only slightly higher than the environmental concentration present in the air of certain cities.

In any case, the odour does not constitute a reliable index of the concentration in the air given that, even after a brief period of exposure, you can become used to the odour itself.

TOXICOLOGICAL INFORMATION

Inhalation of ozone vapours is the main risk to health (see table below).

The most significant changes induced by this gas mainly affect the respiratory system: concentrations close to 1 ppm cause a burning sensation in the upper respiratory tract, watering eyes, dryness of the oral mucosa, rhinitis, cough, headache and asthenia, sometimes accompanied by nausea and vomiting.

At higher concentrations, the clinical picture worsens with the onset of dyspnoea, bronchospasm, pulmonary oedema and respiratory paralysis within a short period of time.

Ozone concentrations of 4-5 ppm inhaled for an hour cause acute pulmonary oedema, whilst 10 ppm is lethal within 4 hours and 50 ppm within a few minutes.

All things being equal, the toxicological overview is more serious if ozone is produced and inhaled in urban air given that, in this case, nitrous gases are also present in almost equal quantities. This mixture,

even at a concentration of 1 ppm, causes damage to the central nervous system after just 2 hours. "Nonetheless, there have been no fatal cases of ozone poisoning around the world to date." Concentration in the air (0.3 ppm)

TOXIC EFFECTS

0.05 ppm Olfactory perception

0.4 ppm Burning in the upper respiratory tract

0.8 - 1 ppm Watering eyes, cough

2 ppm Nausea, headache, vomiting

5 ppm Bronchoconstriction

10 ppm Lethal due to pulmonary oedema after 4 hours of exposure

50 ppm Lethal after a few minutes of exposure

FIRE PREVENTION MEASURES

The gas is oxidising and greatly increases the dangers of any type of fire – immediately stop the flow and turn off the generator before taking any other action.

Suitable extinguishing media:

The product is not flammable or combustible. In the presence of a fire, use:

jets of water, CO₂, foam, chemical powders, depending on the materials involved in the fire.

Extinguishing media not to be used: none in particular.






PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

If exposed to fumes, use protection for the respiratory tract.




Protection is particularly necessary if the smell of ozone is clearly noticeable in the environment and, in any case, if the products involved in the fire emit toxic fumes.

Regulatory information:

- **R8** Contact may cause combustible material to ignite
- **R9** Explosive when mixed with combustible material
- **R20** Harmful if inhaled
- **R48** Danger of serious damage to health by prolonged exposure · R34 Causes burns
- **R36** Irritates the eyes
- **R37** Irritates the respiratory system
- **R38** Irritates the skin

1.  **WARNING! STRICTLY COMPLY WITH SAFETY REGULATIONS:** Green Strategies Srl is not liable for improper use of its products or for any damage caused to people and objects due to failure to comply with the rules on use and safety reported in this manual.
2.  **WARNING! Products with moving parts: DO NOT INSERT HANDS OR FINGERS INTO THE GENERATORS WHEN IN OPERATION AND/OR CONNECTED TO THE EXTERNAL POWER SOURCE**
3.  **WARNING! IT IS FORBIDDEN TO INTRODUCE OBJECTS INTO THE GENERATORS WHEN IN OPERATION**
4.  **WARNING! BEFORE STARTING THE OZONE GENERATORS, ENSURE THAT NO PEOPLE OR ANIMALS ARE IN THE ENVIRONMENTS TO BE TREATED**
5.  **WARNING! DO NOT EXCEED OZONE CONCENTRATIONS ABOVE THE LIMITS**

SET OUT IN THIS MANUAL

6.  **WARNING! IT IS STRICTLY FORBIDDEN TO TURN ON AND/OR USE THE OZONE GENERATORS INSIDE EXPLOSIVE ENVIRONMENTS OR AREAS AT RISK OF FIRE**
7.  **WARNING! THE OZONE DECAY IN OXYGEN DEPENDS ON THE TEMPERATURE AND HUMIDITY OF THE ENVIRONMENT IN WHICH IT IS USED.** It is recommended to install ozone detectors to check the degree of ozone concentration in the environment.
8.  **WARNING! USE OF THE OZONATORS IS PERMITTED SOLELY TO PERSONS OVER 18 YEARS OF AGE AND ONLY AFTER HAVING STUDIED THE DEVICE AND ITS OPERATING PROCEDURES, HAVING RECEIVED THE CORRESPONDING TRAINING ON THE RESPONSIBILITY OF USE, THE SAFETY INSTRUCTIONS AND THE PRECAUTIONARY MEASURES**

SAFETY PROTOCOL FOR USING THE GENERATORS (Points 1-16)

1. **IMPORTANT!** Ozone generators should be stored out of reach of children and unauthorised persons.
2. When applying the ozonator, carefully follow the instructions in the manual and the common safety rules when operating electrical devices.
3. It is strictly forbidden to switch on an ozonator inside explosive and fire-risk areas.
4. **It should be considered that the concentration of ozone above the foreseen limits does not give advantages in terms of sanitation and is dangerous: the use of the O3ONO generators in the foreseen parameters (temperature, cubic meters foreseen for each model and time of use) determine a theoretical maximum concentration of 14 ppm / m3 and an average concentration of about 4-8 ppm / m3 depending on the temperature and humidity.**
5. It is forbidden to use an ozonator if the power cord is damaged.
6. It is forbidden to use an ozonator if the protective guard on the quartz tubes has been removed.
7. When disconnecting the ozonator, do so by holding onto the plug. Do not pull on the cable and do not expose the power cable to mechanical stresses.
8. It is forbidden to clean an ozonator during operation and to introduce foreign objects into the ozonator.
9. Only use the ozonator when it is in proper working order. If a fault is detected, send the ozonator to the assistance service.
10. Ozone is a colourless and foul-smelling gas, one of the strongest oxidising agents, with an intense operating mechanism. It is strictly prohibited for people to be present within the environment being treated from the moment the ozonator is switched on until the room has been properly ventilated or until the ozone concentration therein does not exceed the acceptable level (2.5-3 hours at room temperature).
11. If an ozonator is installed in the air ducts, check the seal of the ducts themselves, for example by wrapping the tested area with a piece of white cloth, soaked in potassium iodide solution. If the soaked cloth turns brown when the ozonator is turned off, it means that the duct is not airtight.
12. Personnel using the ozonators must undergo preliminary and periodic medical checks.
13. **IMPORTANT: at room temperature (above 15°C), the period of time to reach the acceptable level of ozone concentration following ozonator operation is 2.5-3 hours. This period of time can be reduced to 15-20 minutes if the room is naturally ventilated by opening windows or external doors or by activating exhaust ventilation. At temperatures below 15°C, ozone decay requires more time, hence it is advisable to use an ozone meter**

before returning to the treated environments. As a point of reference, at an average humidity of 60-70%, ozone decay at zero degrees takes 72 hours (3 days).

14. Only service personnel wearing personal protective equipment for the respiratory tract may ventilate the room during application.
15. The entry into the treated environment, before the decay time foreseen in this manual, is allowed to people and animals only after the control of the ozone concentration in the treated environment, by authorized personnel. In this case it is advisable to use an ozone concentration indicator. The indicators are designed to determine the ozone concentration in the range of 0.05-2.00 mg / m³ and allow you to evaluate the levels of ozone concentration in the air. The results of the detections must be recorded in a special register that reports the treatment time, the waiting time before returning to the environment, the ozone concentrations taken during the detections. If, following the disinfection cycle as per point 12, during the time spent inside the room, people complain of an inflammation of the upper respiratory tract (sore throat, mild cough, dizziness), immediately evacuate the room and ventilate it again.



SIGNS OF ACUTE OZONE POISONING AND FIRST AID MEASURES

- At the concentrations indicated, inhaling ozone does not create permanent damage. However, acute ozone poisoning is possible when operating at high concentrations without personal protective equipment or if remaining for long periods of time within the environments undergoing treatment. It is characterised by acute inflammation of the eyes, nasopharynx and respiratory tract (sore eyes, dry mouth, sore throat, cough), dizziness, increased heart rate, dilation of the irises, headache. In more complicated cases, blood pressure decreases and respiratory problems occur, along with sternal pain and drowsiness.
- When the initial symptoms of acute ozone poisoning arise, the afflicted person must be immediately taken outdoors and made to rest in a warm area. The disturbances should pass in a few minutes. If breathing disorders persist, they should inhale humidified oxygen (75-80%); in the event of respiratory tract inflammation, prepare a 2% sodium bicarbonate solution. It is also necessary to seek specialised medical assistance, informing them of the duration and concentration of the ozone inhaled.

TECHNICAL DATA SHEETS

O3ONO 3



	OZONO - 3
Max. cubic metres of air to be treated	105
Ozone productivity, g/h	up to 3
Air flow, m ³ /h	25
Power W.	80
Dimensions (HxWxD), mm	315x60x230
Weight kg	3.5
IP Protection Class	00AW

O3ONO 5



	OZONO - 5
Max. cubic metres of air to be treated	175
Ozone productivity, g/h	up to 5
Air flow, m ³ /h	105
Power W.	89
Dimensions (HxWxD), mm	400x150x240
Weight kg	3.5
IP Protection Class	00AW

O3ONO 10 - 15



	OZONO - 10	OZONO - 15
Max. cubic metres of air to be treated	350	525
Ozone productivity, g/h	up to 10	up to 15
Air flow, m ³ /h	290	290
Power W.	174	249
Dimensions (HxWxD), mm	460x200x320	470x200x300
Weight kg	6	6.6
IP Protection Class	00AW	00AW

O3ONO 20 - 30



	OZONO - 20	OZONO - 30
Max. cubic metres of air to be treated	700	1050
Ozone productivity, g/h	up to 20	up to 30
Air flow, m ³ /h	290	290
Power W.	324	474
Dimensions (HxWxD), mm	630x200x300	650x200x300
Weight kg	9	10
IP Protection Class	00AW	00AW

O3ONO 40 - 50 - 60



	OZONO - 40	OZONO - 50	OZONO - 60
Max. cubic metres of air to be treated	1400	1750	2100
Ozone productivity, g/h	up to 40	up to 50	up to 60
Air flow, m ³ /h	589	580	584
Power W.	624	650	948
Dimensions (HxWxD), mm	630x200x520	630x200x520	630x200x520
Weight kg	19	20	20
IP Protection Class	00AW	00AW	00AW

OZONO 70 - 80 - 90



	OZONO - 70	OZONO - 80	OZONO - 90
Max. cubic metres of air to be treated	2450	2800	3150
Ozone productivity, g/h	up to 70	up to 80	up to 90
Air flow, m ³ /h	870	870	870
Power W.	1023	1173	1323
Dimensions (HxWxD), mm	630x200x800	630x200x800	630x200x800
Weight kg	30	30	30.5
IP Protection Class	00AW	00AW	00AW

OZONO 100 - 110 - 120



	OZONO - 100	OZONO - 110	OZONO - 120
Max. cubic metres of air to be treated	3500	3850	4200
Ozone productivity, g/h	up to 100	up to 110	up to 120
Air flow, m ³ /h	1160	1160	1160
Power W.	1856	2006	2156
Dimensions (HxWxD), mm	630x400x650	630x400x650	630x400x650
Weight kg	31	31	32
IP Protection Class	00AW	00AW	00AW



WARRANTY AND MANUFACTURER'S DETAILS

FILTERS	FA - 30	FA - 60	FA - 90	FA - 120
Ozonator model	O3OnO-5 O3OnO-10 O3OnO-15 O3OnO-20 O3OnO-30	O3OnO-40 O3OnO-50 O3OnO-60	O3OnO-70 O3OnO-80 O3OnO-90	O3OnO-100 O3OnO-110 O3OnO-120

INFORMATION REGARDING FAULTS UNDER WARRANTY

1. **In the event of faults in the ozonator during the warranty period and the need for repair, the following documents must be sent to the seller:**

- Warranty card duly completed (see next page)
- Proof of purchase (copy of the invoice and/or receipt)

WARRANTY OBLIGATIONS

1. The seller guarantees the quality of the goods supplied. Unless otherwise indicated in the agreement or in the documents pertaining to the products, the duration of the product warranty period is 24 (twenty-four) months from the date the products are transferred to the buyer.
2. In the event of a fault during the warranty period, the manufacturer is obliged to eliminate the defect or replace the product or parts thereof following receipt of the request. The costs of eliminating defects or replacing the product or parts thereof (including transport) are borne by the seller.
3. The seller is not liable for faults caused by falls, impacts, introduction of foreign objects, liquids or rain spilling into the appliances, voltage surges due to lightning and/or external causes or improper use of the appliances.
4. The appliance and/or defective parts thereof must be delivered to the manufacturer for replacement and will become the property of the manufacturer, otherwise the buyer will be charged for the replaced part.

The manufacturer reserves the right to make changes to the blueprint and/or construction and design of the ozonators, to improve their quality. The seller would be grateful to receive any constructive comments and suggestions on the construction and operation of the ozonators from its customers.

WARRANTY CARD

- Date
- Buyer's first name and surname.....
- Device pick-up and return address
-
- Ozonator model
- Serial number
- Description of the fault
-
- Estimated hours of use before the fault
- Any additional comments
-
- Signature



WARRANTY CARD

- Date
- Buyer's first name and surname.....
- Device pick-up and return address
-
- Ozonator model
- Serial number
- Description of the fault
-
- Estimated hours of use before the fault
- Any additional comments
-
- Signature



TIMER SOCKET (not included for UK market)

For models without intergrated timer

INSTRUCTION

Read the following instructions carefully before using the product.

IMPORTANT

- Do not apply equipment with a current intensity greater than 16A to the timer.
- Always make sure that the plug is fully inserted into the socket of the timer.
- Remove the timer from the power outlet before cleaning it. For cleaning, use a dry cloth.
- This timer is splash resistant, but avoid submerging it in water or other liquids. Do not touch the timer with wet hands.
- Avoid using the timer with stoves and with all those objects that, by their nature, should not be left unattended during use.

KEY DESCRIPTION

1. MASTER CLEAR: Clears all the data in memory, including the time and programs.
2. RANDOM: Set or cancel the Random function.
3. CLOCK: Set the time together with the WEEK, HOUR and MIN buttons. Select the 12h / 24h modes together with the TIMER button. Set the summer time together with the ON / AUTO / OFF button.

4. TIMER: Set the programs together with the WEEK, HOUR and MIN buttons. Select the 12h / 24h modes together with the CLOCK button.
5. ON / AUTO / OFF: Selects the timer operating modes.
6. WEEK: Select the week together with the CLOCK or TIMER buttons.
7. HOUR: Select the time together with the CLOCK or TIMER buttons.
8. MIN: Select the minutes together with the CLOCK or TIMER buttons.
9. RES / RCL: Cancel programs or recall canceled programs.

OPERATION

1. Insert the timer into a normal 230 / 240V power socket and switch it on. Let the battery charge for about 12 hours.
2. After charging the battery, clear the memory by pressing MASTER CLEAR with the tip of a pencil.
3. The timer is now ready to be set.

SCHEDULE

1. While holding CLOCK, press the WEEK, HOUR and MIN buttons to select the day of the week, the hour and minutes.
2. To cancel an incorrect selection, repeat the operation.

PROGRAMS

1. Press TIMER. The display shows ON_1.
2. Press WEEK to set the day or series of days of the week you want. Set the time with the HOUR and MIN buttons.

-
3. Press TIMER again to switch from the ON (ON) to the OFF (OFF) settings: OFF_1 will appear on the display. Repeat the procedure described in point 2 to set the switch-off time.
 4. Press TIMER again if you want to set a new switch-on (ON_2) and switch-off (OFF_2) program, repeating the procedure described in points 2 and 3.
 5. Press CLOCK to end programming.

MANUAL ON / AUTO / MANUAL OFF

1. Press ON / AUTO / OFF to select the three different operating modes.
2. Programs can only be run in AUTO mode. When AUTO is selected, the Timer works according to the programs entered. In MANUAL ON and MANUAL OFF mode the Timer ignores the set programs. In MANUAL ON mode the Timer remains on, in MANUAL OFF it is off.

RANDOM FUNCTION

1. Press the RANDOM button. RANDOM will appear on the display.
2. When the RANDOM function is activated, the programs set will be executed with an advance varying between 0 and 30 minutes, between 06:00 PM and 06:00 AM.
3. Press RANDOM again to deactivate the function.

12H / 24H MODE

Press CLOCK and TIMER simultaneously to change the time display mode between 12H and 24H.

DAYLIGHT SAVINGS TIME

1. Press CLOCK and ON / AUTO / OFF simultaneously. SUMMER will appear on the display and the clock will advance by one hour.
2. To return to standard time, press the CLOCK and ON / AUTO / OFF buttons simultaneously again.

SPECIFICHE

Voltage.....	230 / 240V AC 50Hz
Maximum load.....	16 ° / 3500 W.
Operating temperature.....	-10 ° C ~ + 40 ° C
Accuracy.....	+/- 1 minute per month
Backup battery.....	Ni H 1.2 V (100 hours of autonomy)

MANUFACTURER'S DETAILS

- Company name.....**GREEN STRATEGIES Srl**
- Company headquarter.....**Via Roveredo 20/B - 30177 - Pordenone (Italy)**
- VAT No.**01883020933**
- Recipient code
(mandatory for
electronic invoicing).....**E06UCUD**
- PECC.....**greenstrategiessrl@legalmail.eu**
- E-mail.....**info@greenstrategies.eu**
- Website.....**www.greenstrategies.eu**

Thank you for your trust in us!



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