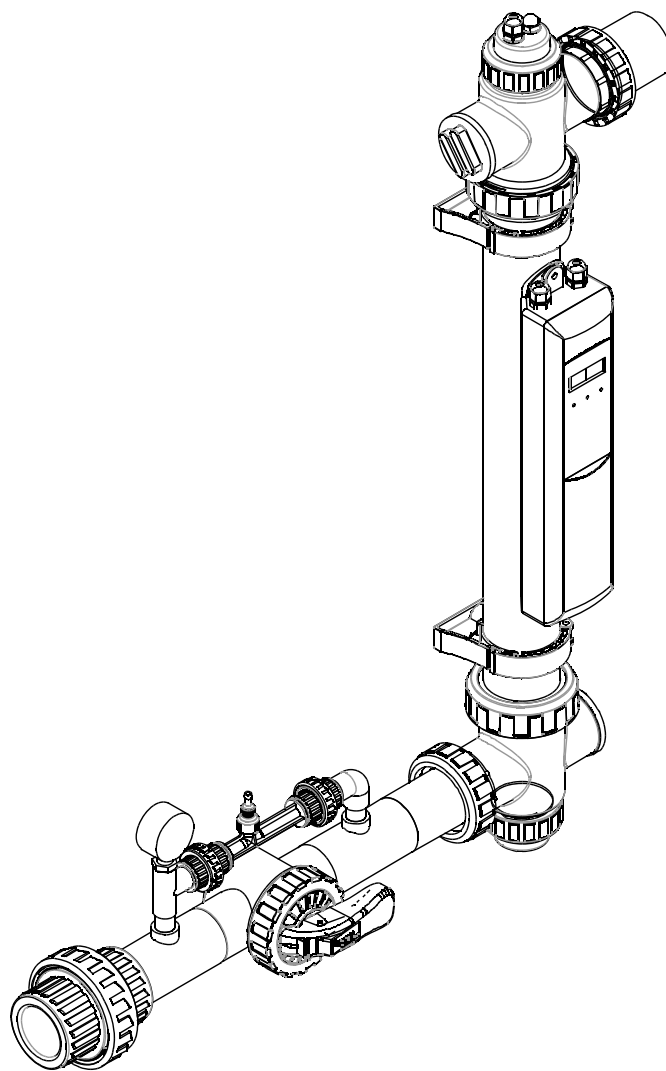


# ***NanoTech* UV-C Ozone Disinfection System**





**User's Quick guide**  
**Mod. *NT-UV87-TO***



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## 1. Safety Instruction

	<p>This product should be installed by a professional service technician or similar person, qualified in electrical equipment installation. Improper installation and/or operation could cause serious injury, property damage or death. Improper installation and/or operation will void the limited warranty.</p>
	<p>When using electrical products, basic precautions should always be followed, including the following:</p> <ol style="list-style-type: none"> <li>1. <b>DANGER: RISK OF ELECTRIC SHOCK.</b></li> <li>2. Grounding is required. The unit should be installed and grounded by a qualified service representative.</li> <li>3. Install to permit access for servicing. Make sure you choose a position where the lamp can be taken out – the <b>AVAILABLE HEIGHT</b> should be <b>DOUBLE</b> the total height of the unit.</li> </ol>
	<p>This system must be connected only to a supply circuit that is protected by a Ground Fault Circuit Interrupter (GFCI), otherwise could result in electrical shock causing serious bodily injuries, including death.</p>

- Disconnect all power supplies during installation.
- Do not operate the ultraviolet system if the power supply lead is damaged.
- Replace damaged cords immediately.
- To avoid possible electrical shock, special care should be taken keeping all connections dry and off the ground. Do not touch the plug with wet hands.
- For each of the following situations, do not attempt to repair the appliance on your own; return it to an authorized service facility for revision:
- If the appliance falls into the water, DO NOT reach for it. First unplug it and then retrieve it.
- If electrical components of the appliance get wet, unplug the appliance immediately.
- Do not operate this UV-C system if the cord or plug is damaged, if it is not operating properly after a fall or otherwise caused damage.
- Never look at the UV lamp directly while it is operating, as it may cause eye injury, burns, or even blindness.

- Lamps and quartz sleeves are extremely delicate.
- Care should be taken when handling or replacing these components:
- Wear cotton gloves when handling lamps or sleeves.
- Hold bulbs by the ends only and never touch the glass with bare hands, since it would leave dirt which would reduce its working life.
- If any fingerprint is left, clean it with alcohol.
- Allow the ultraviolet lamps to cool before handling.
- Special safety must be taken into consideration for the model Nano-Tech UV-C Ozone NT-UV87-TO:
- The UV lamp generates ozone that emits a strong odour, even in very small quantities, and can be harmful for eyes, nose and skin.
- Check the system for any leakage. A proper installation and the correct position of the sealing rings are of crucial importance.

## 2. Specification

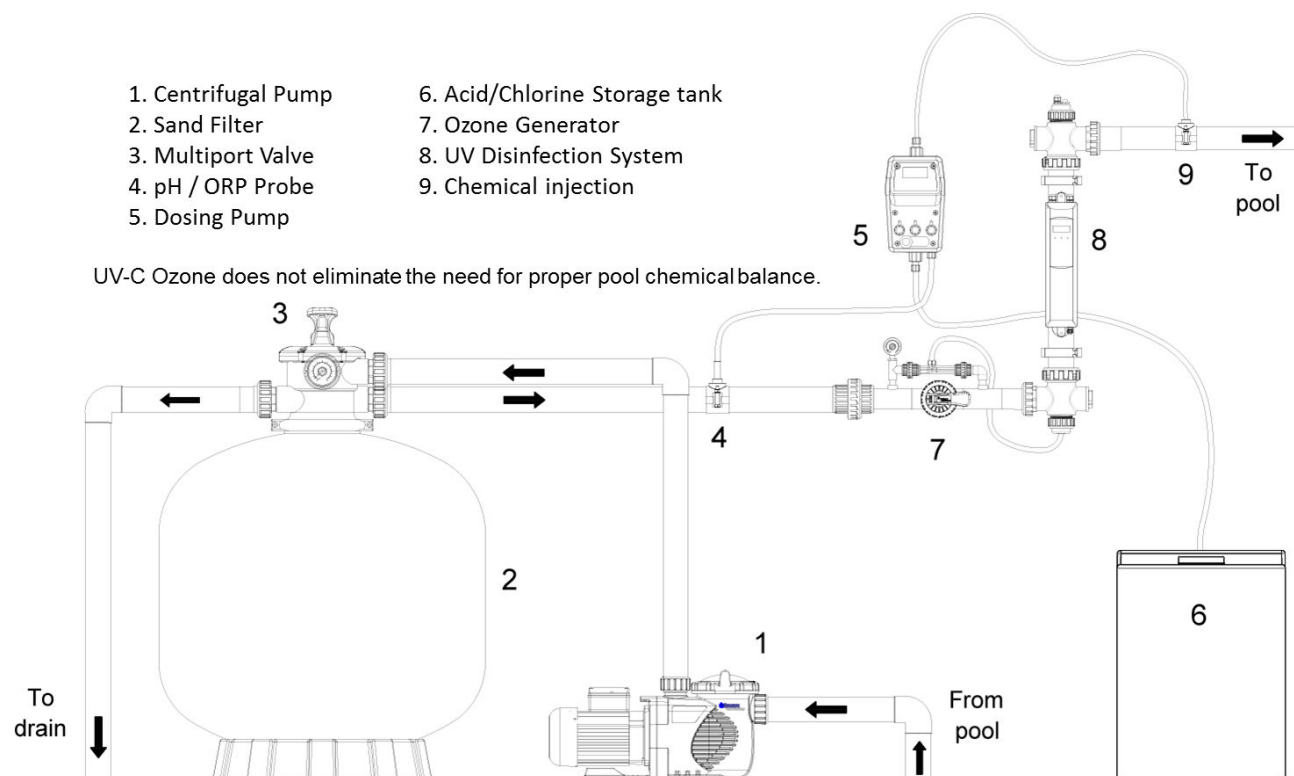
Model	NT-UV87-TO
Power Supply	120/240V, 50 – 60Hz
Max. Flow rate	25 m <sup>3</sup> /h
Input power	87 W
Lamp model	GHO36T5VH
Maximum Working Pressure	3 bar
Inlet/ Outlet	1 ½" / 2" BSP
Radiation dose at recommended flow rate	30 mJ/cm <sup>2</sup>
UV and Ozone Lamp Lifetime	10000 hours
IP Protection	IP 54
Max. Ozone production	0.6 gr/h
Venturi tube pressure range	8-10 PSI (0.55~0.69 Bar)

## Water Condition Parameters:

pH	7.2-7.6
Total alkalinity	60 – 120 ppm
Hardness	120 mg/l
Turbidity	< 1 NTU
TSS: Total suspended solids	< 10 mg/l
UV Transmittance	> 35%

### 3. Typical Installation

This water circulation system flow from water pump from skimmer to sand filter and position the Ozone UV lamp after filter. Water pH or ORP probe should be mount in front on the ozone generator 7 and chemical dosing, such as Acid or chlorine, after the Ozone UV-C unit.

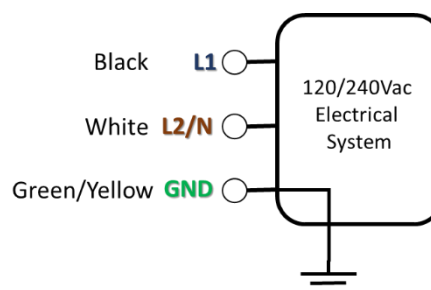


### 4. Electrical Connection

Power receptacles must be GFCI (Ground Fault Circuit Interrupt) protection build in for electrical shock protection.

For standard 120V/240Vac power unit, it will be shipped with power cord and operate on 1 phase Line-Neutral- Ground Electrical System.

For North America 240Vac power, it operate on 2 phase Line-Line-Ground Electrical Systems.



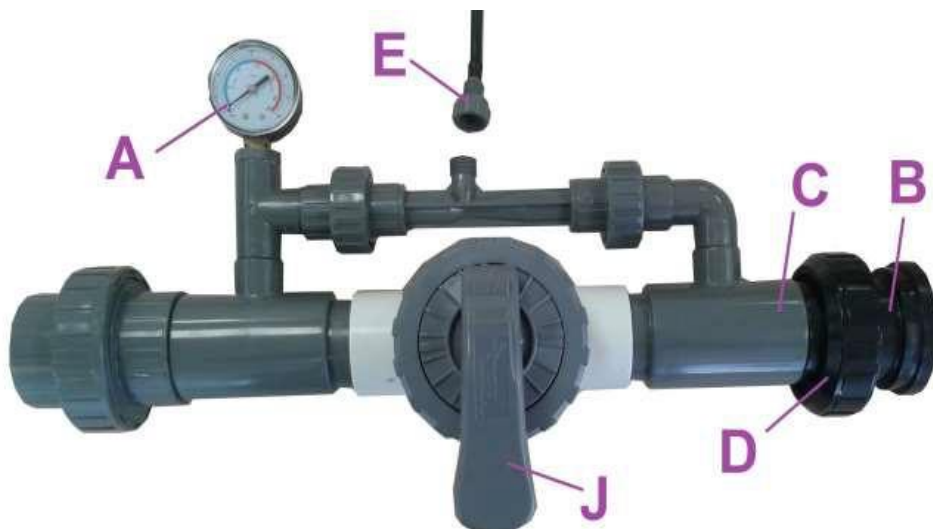
## 5. Installation guide

To achieve the correct installation, please follow the recommendations listed below:

- Never install the UV-C system in an area exposed to direct sunlight. This equipment must be installed in a dry and ventilated area.
- The UV-C system must be fitted in a vertical position, and leaving a minimum space of 30 cm underneath and 1.5 meters at the top of the equipment for maintenance operations and replacing the lamp.
- The UV-C system needs to be installed always after the filter and before pH regulator or any possible salt chlorinator or dosing system. Please refer to the Section 3 Typical Installation
- If the filtration pump exceeds the maximum flow rate allowed for the UV-C system, a by-pass circuit will be required.

Follow the instructions procedure below for installing the Nano-Tech UV Ozone System:

- Fit the manometer (A) onto the Venturi circuit using Teflon tape. Hand-tighten the manometer.
- The Venturi circuit can be installed in a horizontal or vertical position. Before gluing the fitting piece (B) into the outlet (C), make sure that the threaded nut (D) is as the following image displays :



- Screw the female hose fitting (E) onto the male thread of the Venturi circuit. The other end of the hose must be fitted into the elbow adapter, on the top of the system (F). There is a Non-Return valve (K) between (E) and (F) which is a one direction valve to prevent air go back to the UV lamp Ozone generator.
- Joint the 3 parts (B), (D) and (L), so that the Venturi circuit and the UV system are firmly assembled.
- Afterwards, choose at suitable place to install the assembled system, if and when it follows the order according to Section 3 Typical Installation.
- Fit the UV-C reactor with the supplied clips (H) and ensure that the 3-part couplings (B) (D) (L) are still solidly tighten. Never use a wrench, clamps or other tools whatsoever to fix the reactor.
- The power supply wire (I) has to be connected in a way that the UV system works as the same time as the filtration pump does. If not, all the UV system could get overheated.



- Activate the pump, vent the whole system and check for any leakage in the circuit.
- The quality of the ozone air in the system can be adjusted by using the manual valve (J). The closer it remains, the more ozone will enter the circuit. The desirable range on the manometer is 8~10 PSI.
- Keep in mind: the air filtering intake (G) on the upper part of the ozone device is intended to absorb air for ozone generation. It has to remain cleared.

## 6. Maintenance operations



**Allow the unit to cool for at least 30 minutes before handling.**

The device must be cleaned between one and two times per year. If there is an increase in algae and/or scale, the quartz glass tube in which the lamp is positioned must be cleaned using a soft cloth with spirit vinegar or acid.

After any maintenance operation, ensure that all the components are as they were, and there is no leakage after running the whole system.

The UV-C lamps must be replaced once they lifetime is over.

### Lamp replacement procedure

Always switch off the power supply when replacing the lamp.

Do not touch the lamp with bare hands. Use a soft fabric or cotton gloves to handle or clean the lamp. If the lamp has been touched, it is recommended to clean it again using a soft fabric and some alcohol.

The procedure for replacing the lamp is as follows:

- Stop the whole system filtration pump and UV system
- Allow the ultraviolet lamp to cool for at least 10 minutes before handling.
- If you don't intend to change the quartz glass, you don't have to drain the system.
- Unthread the screw cap (P) on the top of the UV equipment without removing the cable. Carefully, extract a little the lamp(R) without unplugging it.





- Once you can reach both lamp(R) and cable socket (Q) unplug carefully the lamp grasping it from its end. Afterwards, you will be able to take out the entire lamp. When doing this, bear in mind that carefulness is essential.



- If the quartz glass needs cleaning or replacing, then the system needs to be drained. After that, unthread both upper and lower quartz glass holders(S) and carefully remove the quartz glass (T) with O-rings (U).
- Introduce carefully the quartz glass (T). Ensure that it is placed as it was previously. Do not forget to replace the O-rings (U) at both ends of the quartz glass, so that the inner part of the quartz stays waterproof.
- Hand-tighten again the quartz glass holders(S) and introduce the new lamp carefully into the quartz glass.
- Plug the lamp into the cable socket (Q), and then carefully finish to put the lamp inside the quartz.
- Thread again the screw cap (P) and ensure that it remains properly tighten.

## 7. DIGITAL TIMER.

There are three different options can be selected with the digital timer:



### a) UV lamp life time meter:

As soon as the above mentioned model with Timer is switched on, the program will carry out a self-test. The display will automatically show the following code: 8888 (display test); rand software version number; 50H or 60H indication of the mains frequency in Hz.

- When the UVC lamp is switched on for the first time, or after the 'Reset' function has been used, the value '9000' will appear on the display. A dot next to the digit on the far right of the display will blink every second; this indicates that the counter is running.

●

If the UV-C lamp had already been used previously, and is switched on again, the display will indicate the value it had at the time it was switched off earlier.

If you had increased or reduced the value of the time meter by yourself, the display will indicate the latest counter reading it had before it was switched off.

The settings of the time meter can be modified if you wish. This is carried out as follows:

- Press the bottom 'MENU' and select the option 'Hr' pushing 'MENU' again.
- The flushing number shown on the screen will indicate the hours left for replacing the lamp.
- Press the bottom 'MENU' to modify the hours.
  - Pushing the buttons ▲ and ▼ the counter value will increase or decrease in steps of 500 hours from the initial value up to a maximum value of 9500 and minimum of 500.
  - After reach to the hours desired, stand off for 10 seconds until stop flushing and confirm the set hour chosen.

The time meter will indicate in the following manner that the lamp must be replaced:

- From hour position 0672; the display will blink every second. The lamp is to be replaced in 4 weeks' time.
- From hour position 0336; the display will blink every half second. The lamp is to be replaced in 2 weeks' time.
- From hour position 0168; the display will blink every 1/4 second. The lamp is to be replaced in 1 week time.
- At an hour position of 0000; the digits will blink continuously, and the meter will not continue to count down. The lamp must be replaced.

## **b) Schedule timer:**

This option allows you to schedule the working hours desired for the proper disinfection of the pool.

- Press the bottom 'MENU' and push ▲ or ▼ until option 'UV'. Press 'MENU' to select.
- 'UV00' means midnight 00:00h; Pressing ▲ or ▼ you will move through all the hours in a day (from 0h to 24h.) UV01 means 01:00 am; UV02 means 02:00 am ...
- Press the bottom 'MENU' to select one hour.
- The select hour will be flushing. Pushing ▲ or ▼ you will select if at this hour the device will be switched on or off. Wait for 10 seconds until stop flushing and confirm the selection.
- Press the bottom 'MENU' if you want to go back or select another hour.
- Proceed with the same steps for the other hours.

### **c) Clock:**

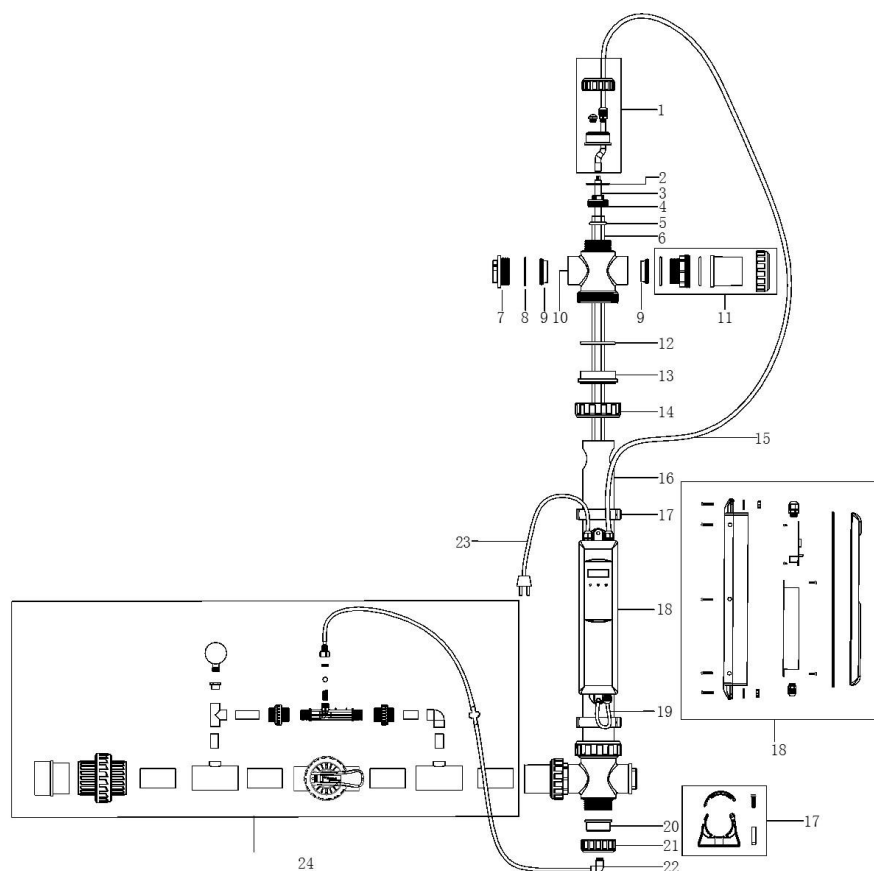
This option allows you to modify the clock according to the current time.

- Press the bottom 'MENU' and push ▲ or ▼ until option 'rest'. Press 'MENU' to select.
- The hour indicator will flush. Press ▲ or ▼ to select the current hour. Wait for 10 seconds until stop flushing to confirm the hour.
- Press 'MENU' to select the minute indicator will flush. Press ▲ or ▼ to select the current minutes. Wait for 10 seconds until stop flushing and confirm the setting automatically.

## 7. Troubleshooting

TROUBLE	POSSIBLE SOLUTION
<b>UV-C system failure, possible lamp disconnection</b>	Disconnect the power cord from the electrical outlet, disassemble the lamp and verify if the lamp connector is fixed firmly in place.
	Verify if the electric cable is connected into an electrified circuit. Test the electrical circuit. As it is said in section 4. Installation guide, UV system and the pump should start working at the same time.
	Make sure you have not connected the device into any power source other than specified on the unit's label. If you have done so in error, the electrical unit might have been damaged and should be replaced. Contact your supplier for the replacement (Not warranted).
<b>The UV lamp no longer lit</b>	Verify that the electrical outlet where the UV-C System is plugged into has the proper voltage and the cable is securely plugged into the outlet.
	The lamp has burned out. Replace the UV lamp.
	The electrical unit has burned out. Contact your supplier for the replacement.
<b>Pool water is green</b>	Check the chemical balance of the pool.
	Check the UV-C system to make sure it is on.
	Run the UV-C system and the circulation pump longer. If the UV system is operated by a timer, increase a number of working hours.
	Consider replacing the UV lamp. After 4500 hours of operation, the lamp efficiency drops up to 80%. This is normal for all low-pressure type UV lamps.
<b>UV-C system makes noise when operating</b>	Check all connections and sealing rings, especially those near to the UV lamp and the quartz glass.
	Check the screws on the installation, and pay attention to those vibration points
<b>Water is coming out; the UV-C system is leaking</b>	Check all connections and sealing rings, make sure that all connections are threaded properly.
	Check the quartz glass if it is well placed, damaged or broken.

## 8. Spare Part List



Key No.	Part No.	Description	Piece(s) Required
1	E130401	Air filter	1
2	111040015	Lamp connector O'ring	2
3	106775328	87W UV lamp	1
4	440422251	25 lamp adaptor	2
5	111040016	Quartz O'ring(d24.8XØ5.2)	2
6	103025489	87W Quartz Tube D25x910mm	1
7	430221017	Transparent lid	2
8	111142482	Connector O'ring	2
9	620125430	Adaptor	4
10	620061857	25Cross	2
11	E190201	Pipe connection 2"	2
12	111202472	UV body O'ring(D76*Ø6)	2
13	1304565458	Body connection	2

14	430170986	Union Nut	2
15	105004779	Cable	1
16	620145462	Stainless Steel body	1
17	E130404	Closed pipe clips	2
18	E130402	UV87-TO ballast	1
19	E130407	Earth Connexion	1
20	620135467	Air hole Cap	1
21	430170635	Union Nut 1.5"	1
22	108275466	Gas Nozzle	1
23	105021259	Plug lead	1
24	E130403	Oxidation Set	1