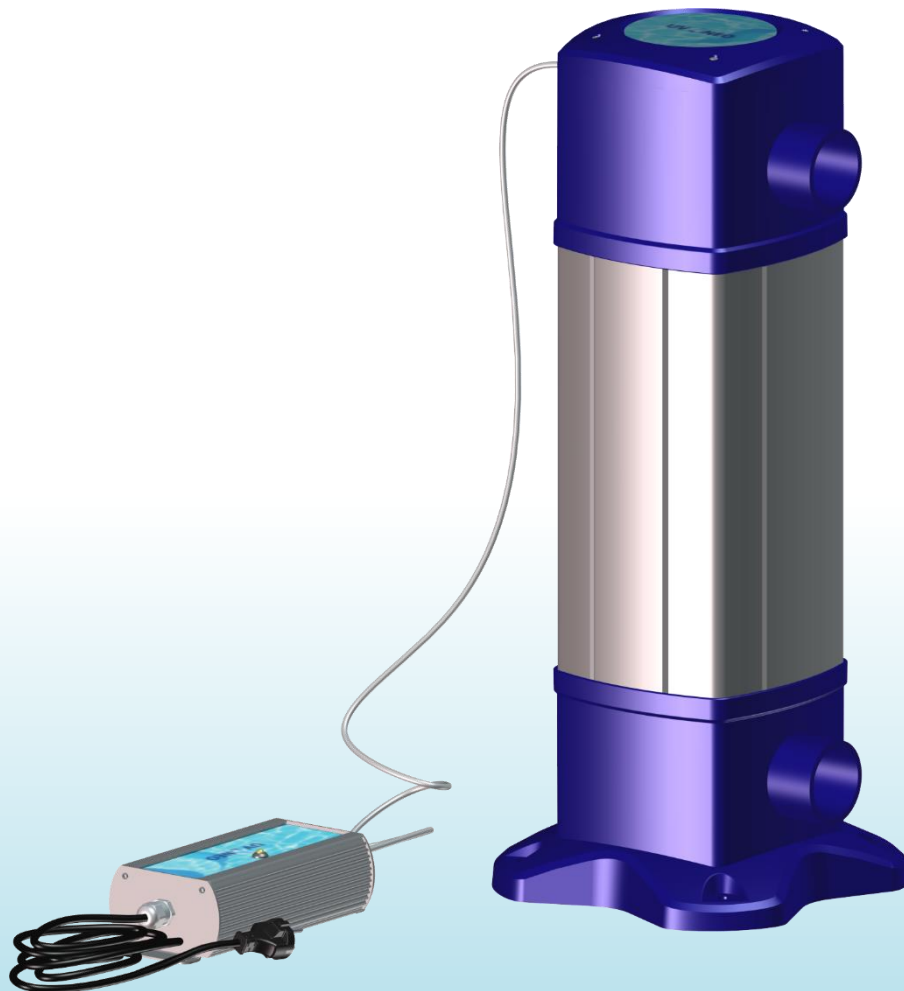


STERILIZER OF THE RANGE UV NEO

INSTALLATION AND MAINTENANCE MANUAL



We thank you for choosing a BIO-UV reactor.
 Our equipment has been designed to give you reliable and safe operation for many years to come.
 The BIO-UV reactors have been designed for speed and ease of installation.
 Their design also makes them easy to maintain.
 Read these instructions carefully in order to optimize the operation of your reactor.

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A. SAFETY WARNINGS



- Switch off the device 30 minutes before any intervention to let the lamp cool down.
- **The system must not operate without water flow (pumps interlock)**

Warning:
This device includes an **UV-C emitter**



**RISKS OF
UV-C
RADIATION**

- **Never expose yourself to the radiation of the ultraviolet lamp when lit. Never directly look at the light source.** This may cause severe injuries or burns and may even lead to loss of eyesight.
- When the lamps are running, **do not take the lamps of the reactor out or remove the protection covers**
- Do not operate the UV-C emitter when it has been removed from the device housing.
- An unintended use of the device or a damage to its enclosure may lead to leakage of hazardous UV-C radiation. UV-C radiation, even in small doses, can be harmful to eyes and skin.



- When **dismounting UV lamp or quartz tube**, it is necessary to wear **protection gloves** not to let fingerprints that could affect the UV emissions quality



- The reactor must be disconnected from the electrical network for maintenance purpose by qualified personal
- Generally, any work on electrical parts must be carried out by qualified and authorized personal.
- **Even when stopped, power is present in the electrical unit** so make sure that the main power supply upstream of the electrical cabinet is switched off before carrying out any work on the equipment.
- Do not use the reactor if the **power supply wire is worn or damaged**. In this case, it should be replaced by BIO-UV, its support service or personal with a similar skill to avoid any hazard.
- To avoid electric short-circuits, **do not place the electric wires or the reactor in the pool water** or in any other maintenance or cleaning fluid.
- Do not perform electrical measurement on ballast output (risk of overvoltage)
- Disconnect the BIO-UV sterilizer before all maintenance and cleaning operations.

- Never unscrew the quartz tube sealing nut **when the reactor is on load** as the quartz tube could be blown out of the reactor with force and injure you.
- In case of a microleakage, the reactor must be isolated and drained to perform a maintenance as soon as possible.
- Do not use the BIO-UV reactor for any other use than that for which it was designed.
- The devices obviously damaged must not be operated.
- When replacing the lamps and/or during the annual cleaning of quartz sleeves, check that the electrical part is in place and correctly secured before switching on the sterilizer. Check that the nut, washer and o-ring are correctly positioned, otherwise the quartz sleeves could be expelled from their holder at speed and injure you.
- This device can be used by children aged at least 8 years old and by persons with physical, sensory or mental capabilities reduced or lack of experience and knowledge, if they are properly monitored or have been given instructions on the use of the appliance safely and whether the risks have been apprehended.
- Children should not play with the appliance. Cleaning and maintenance by the user should not be carried out by children without supervision.
- The safety instructions can be requested by e-mail at the address sav@bio-uv.com. This manual can also be downloaded with the link here below:



<https://biouvgroup.sharepoint.com/:f:/s/Documentation/EmNdooPjAsRFuxcbtYSGBUgB90CRIjYwsRkyVuodgCIIMA?e=VmjzjN>



or the QR code on the right

B. SYMBOLS DESCRIPTION



General warning symbol



Warning: UV radiation



Comment



Warning: electricity



Protective gloves must be worn



Ready for operation



Warning Hot surface



Ground wire required



Refer to installation and maintenance manual

C. TECHNICAL CHARACTERISTICS

	UNIT	UV NEO 12	UV NEO 18	UV NEO 25
Standard reference	-	PUV016570	PUV016571	PUV016572
REACTOR				
Material	-	PVC	PVC	PVC
Maximum flow rate (after head losses)	m ³ /h	12	18	25
Diameter	mm	212	212	212
A) Full length	mm	773	1019	1273
B) Depth	mm	371	371	371
C) Fixation spacing	mm	552	798	1052
D) Service spacing	mm	600	850	1100
E) Width	mm	311	311	311
F) Height / Floor	mm	113	113	113
Weight	kg	11	13	16
Connection type	-	Solvent weld female fitting	Solvent weld female fitting	Solvent weld female fitting
Connection	-	D75	D75	D75
Maximum operating pressure	bar	3	3	3
	MPa	0,3	0,3	0,3
ELECTRICAL CABINET				
Material	-	Aluminium	Aluminium	Aluminium
G) Height	mm	124	124	124
H) Width	mm	280	280	280
I) Depth	mm	74	74	74
Cable length between cabinet/reactor	m	3	3	3
Weight	kg	1,5	1,5	1,5
Power supply	V	120-240	120-240	220-240
Frequency	Hz	50/60	50/60	50/60
Current rating	A	0,55-0,28	0,87-0,44	0,57-0,53
Power cable type	mm ²	3G0,75	3G0,75	3G0,75
Absorbed power	W	65	102	124
Protection	-	Fuse 1A	Fuse 1A	Fuse 1A
On/Off switch	-	Yes	Yes	Yes
Protection index	-	IP54	IP54	IP54
UV LAMPS				
Number of lamps	-	1	1	1
Electrical power per lamp	W	55	87	105
Lamp type	-	High Output	High Output	High Output
UV power per lamp	W	17,5	28	35
Total UV power	W	17,5	28	35
Average life expectancy for 1 start/stop per day	h	13000	13000	13000

D. INSTALLATION GUIDE

1. Foreword

BIO-UV reactors are ready to install, no works is required inside the reactor.



It is necessary to read all the instructions in this manual before switching on the reactor.
Before beginning installation, please wear protective gloves

2. Usage environment

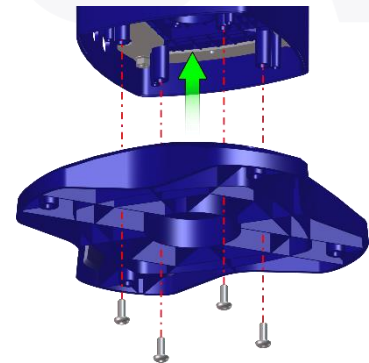
Location	Room protected from direct sunlight and bad weather
Max altitude	From 0 to < 2000m
Degree of pollution	2
Overvoltage category	II
Protection class against electric shocks	I
Ambient temperature	between 5°C et 40°C
Corrosive environment	Protect the electrical box from any corrosive emanations (hydrochloric acid vapors, salt...)
Ambient humidity	< 80% (dry area)

Install the BIO-UV equipment in the equipment room, respecting the 0.1 and 2 safety areas around the volume in accordance with the current installation rules (NF C15100).

3. Pre-assembly

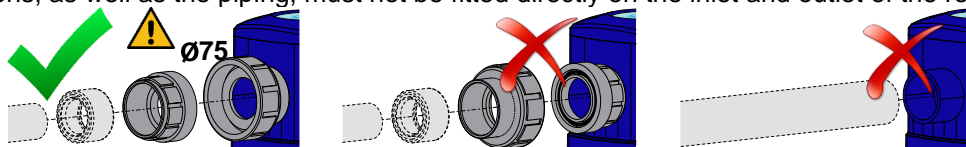
a.) Foot mounting

- Fit the foot on the lower part of the reactor.
- Using an Allen key size 5, mount the 4 screws as shown in the figure opposite.



b.) Provided fittings assembly (mandatory)

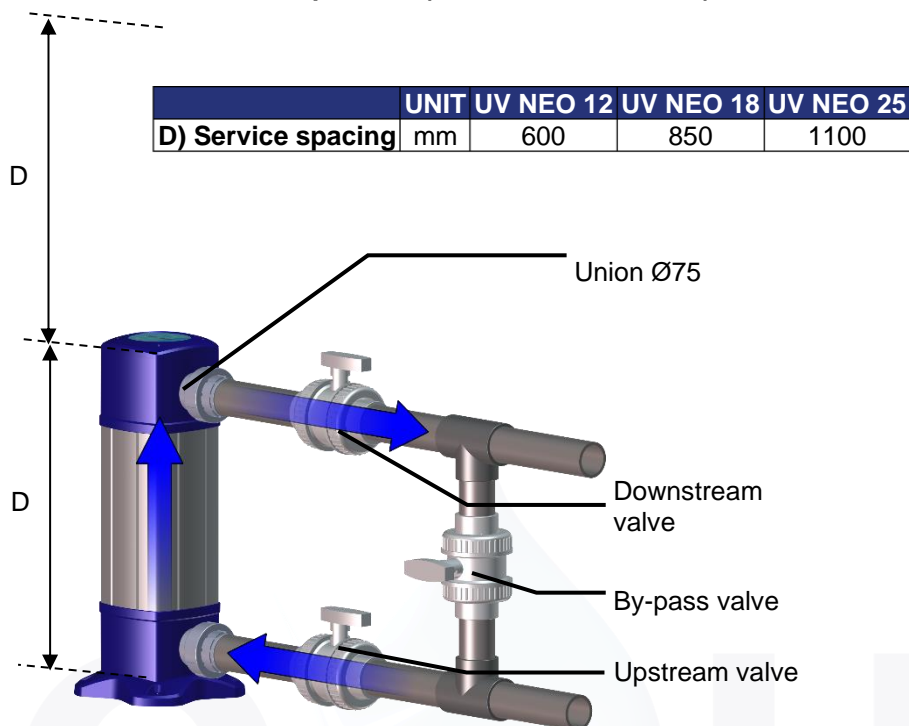
- Using PVC glue, mount the fittings provided with the device on the inlet and outlet of the reactor. The smooth part (collar) and not the threaded part must be mounted on the inlet and outlet
- If necessary, mount and glue the reductions corresponding to the piping diameter on each fitting. These reductions, as well as the piping, must not be fitted directly on the inlet and outlet of the reactor.



Under no circumstances should the reactor body be dismantled. The nuts at the four corners of the reactor should never be loosened as the reactor could start to leak. Any intervention on these nuts could void the warranty.

4. Reactor installation

- For an easier maintenance, we recommend to install a By-pass.
- **The reactor must be installed in vertical position (water inlet downward)**



- **The reactor must be always located on the discharges after the filter**
- **It is necessary to provide a sufficient space (D) to be able to bring the lamp and the quartz out:** the AVAILABLE SPACE in the room should be double of the total reactor length.
- Flow direction must be observed
- The maximum pressure of the piping should never be higher than the reactor maximum pressure (see Technical characteristics table, page 3)



If there is a risk of overpressure, it is recommended to install an automatic drain or a relief valve so that the pipe pressure remains lower than the reactor pressure.

- The unions provided for ease of fitting and dismantling are 75 mm diameter. However, reductions 75x63 and 75x50 allows mounting the device on lower diameter pipings
- If a bypass is used for the heating, the BIO-UV equipment should be installed before the bypass
- Using clamping collars (50, 63 or 75 mm diameter) secure the REMANENT and pH liquid injectors and pH analysis probe in the correct order.
- The reactors are designed to be fixed on the ground. A hole on each of the four feet of the reactor is provided for this purpose. We recommend using 10mm diameter screws to fix the unit.

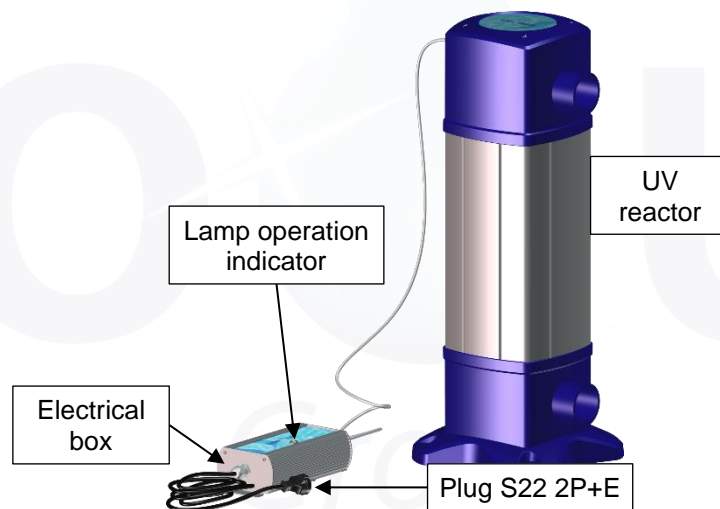
5. Instructions for electrical connections

IMPORTANT :

- Connections must be made by a qualified technician.
- **A residual current device (RCD) not exceeding 30mA must be present. A 16A fuse or a 16A-C curve thermal breaker should be also installed on the device power supply. This breaker should be able to cut off phase and neutral.**
- The supply voltage must be the same as that described on the label affixed to the side of the unit.
- The BIO-UV ultraviolet equipment must be used for filtration and thus operate with this device => the power cable must be wired to the contactor coil of the pump (timer) in the main electrical cabinet (See wiring diagrams below) observing the main voltage indicated on the technical characteristics table, page 5 (Caution to 380V!)
- **Before making connections, turn off the power supply.**
- A disconnection means must be provided on the power supply of the device to allow a complete power cut according to the installation rules. This should be marked in order to be quickly identified
- A disconnection means shall be provided in the fixed piping according to the installation rules



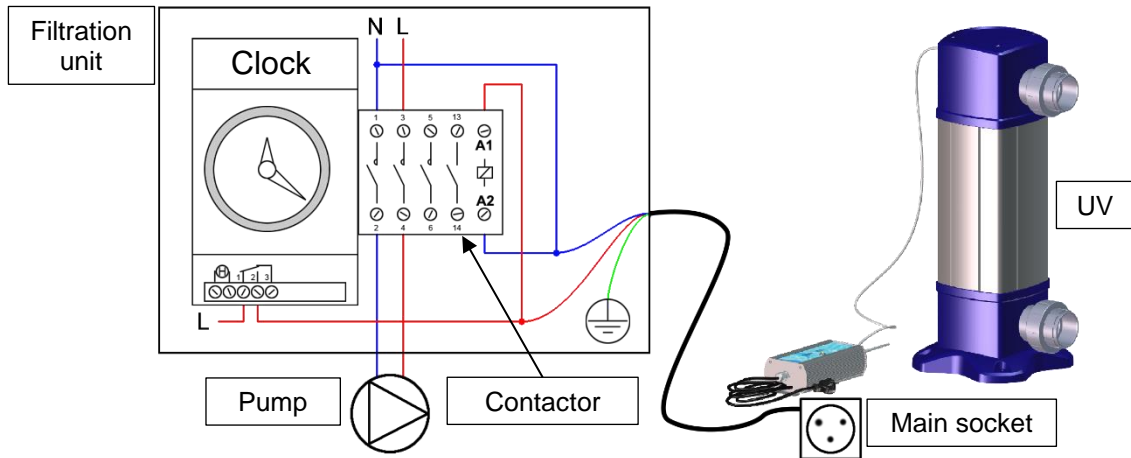
a.) Device description



b.) General case

A contactor with a coil supplied with 120-240Vac (220-240 V AC for UV NEO 25):

1. **Connect** the UV reactor to the filter box as shown below :



Earth= Green/Yellow, L = Live = Brown (120-240Vac, 220-240Vac for UV NEO 25), N = Neutral = Blue

2. Connect the UV reactor to the coil of the contactor (A1/A2)
3. Make sure that the fuse or circuit breaker is suited to the power of all connected devices

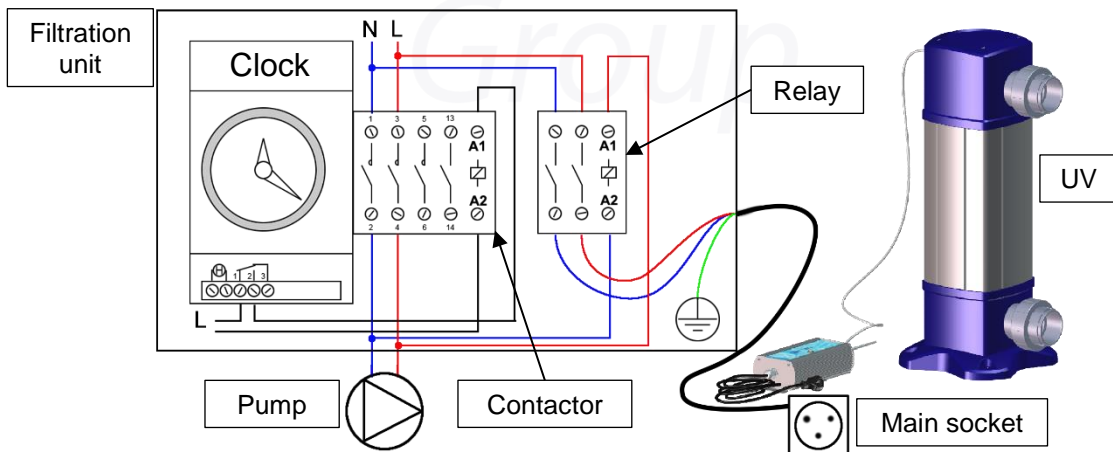


Never connect the UV reactor to the same terminal block as the filtration pumps and / or suppressors of your installation.

c.) Special case

A contactor with an unpowered coil:

1. Use a relay (not provided) to :
 - - Obtain a voltage identical to that of the coil
 - - Accept at least 5 amps on its contacts.
2. **Connect the UV reactor with the relay as shown below :**



Earth= Green/Yellow, L = Live = Brown (220-240Vac), N = Neutral = Blue

3. Connect the UV reactor to the relay output.
4. Make sure that the fuse or circuit breaker is suited to the power of all connected devices.



Never connect the UV reactor to the same terminal block as the filtration pumps and / or suppressors of your installation

E. CHECKS BEFORE COMMISSIONING

- **Check the conformity of the electrical connection** in the filtration unit (D.5. Instructions for electrical connections).
- **Check that the top of the unit** is repositioned correctly.
- **Check that the air taps and clamp saddle connections** are positioned correctly and tightened on the inlet jets.

F. STARTING UP

1 **Set** the clocks of the filtration box

2 **Adjust** the filtration time to the water temperature

3 **Start the filtration** and after a few seconds, the LED indicator confirms the correct operation of the UV lamp

4 Check that there are no leaks on the piping, fittings or around the UV reactor

Evaluate the chemical balance of the water (especially the pH, TAC * and TH *) of your water and adjust them accordingly.

5 **Reminder:** Your device does not change the chemical balance of the water.

* TAC = Alcalimetric Titration (Alkalinity of water)

* TH = Hydrotimetric title (water hardness)



- As device should be controlled by the filtration/pump (as indicated on paragraph D.5. Instructions for electrical connections, page 8).
- **The device should run without stop in hydraulic load**, except in the event of a long halt of the water flow (risk of overheating and deposit on the quartz sleeve).
- **It is preferable to limit the run/stop of the lamp** to optimize their time of efficiency.
- If the reactor has been stop, wait 10 minutes the lamps are cooled to spare their lifetime.
- The lamp indicator if a light for the lamp functioning. If the lamp is running for more than 13000h, it should be replaced even if the indicator is light on.

G. MAINTENANCE



Any operation on the device must be carried out by qualified and skilled personal.



The device must be disconnected from the electrical network before any intervention.
Please cut off main power supply with breaker that protect your equipment.



The handling of UV lamps and quartz sleeves must absolutely be done with **protective gloves** to avoid leaving fingerprints which could affect the quality of UV emissions and to protect the hands in the event of glass breakage.

1. Lamp replacement procedure

The ultraviolet lamps are designed to last for 13,000 hours, i.e. approximately 3 years for a seasonal outdoor pool, or 1 year and a half for an indoor pool operating 24 hours a day.

In order to prevent premature wear, it is recommended that they be switched on (i.e. 1 filtration cycle) only once a day which will also preserve the filtration pump.

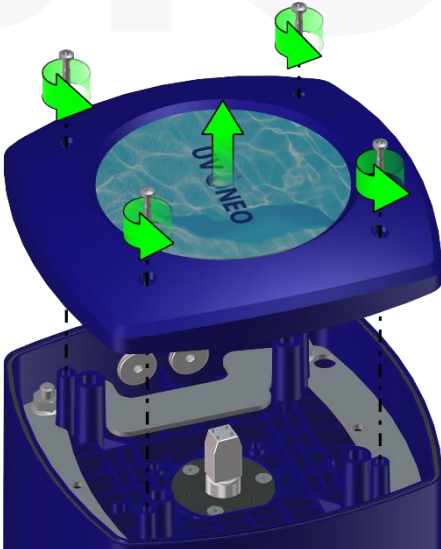
The replacement of lamp after 13 000 hours is mandatory.

1.



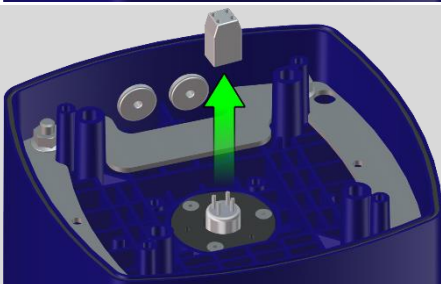
The sterilizer **MUST** be **POWERED OFF**.

2.



Unscrew the 4 screws of the cover by using a Phillips screwdriver then remove the cover.

3.



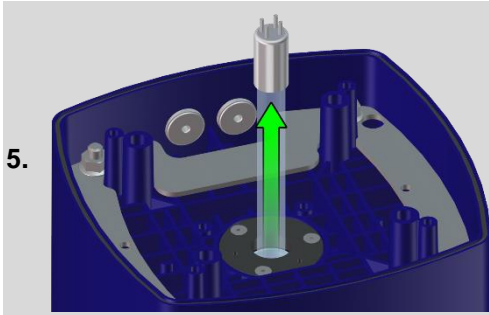
Dismount the connector.

4.



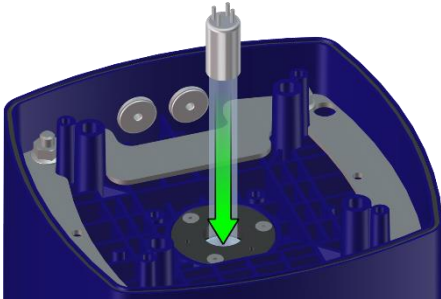
Make sure that the UV lamp is cooled enough before handle it.

5.



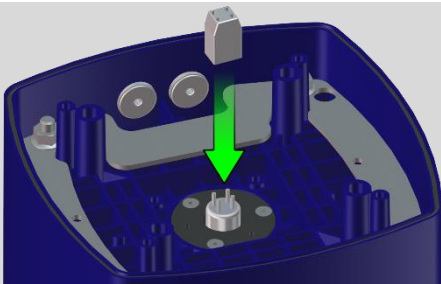
Remove the lamp (use the connector if necessary) and lay it on a clean and smooth surface.
Carry out this operation carefully without touching the glass of the lamp with the hands
Do not drop the lamp in the quartz sleeve as it could break and damage the quartz.
 NB : For the HO lamps, on the first lamp replacement, it is possible to find small o-rings at the lamp extremities, they are used to maintain the lamp during the transport. There is no use to replace them or to put them on new lamps.

6.



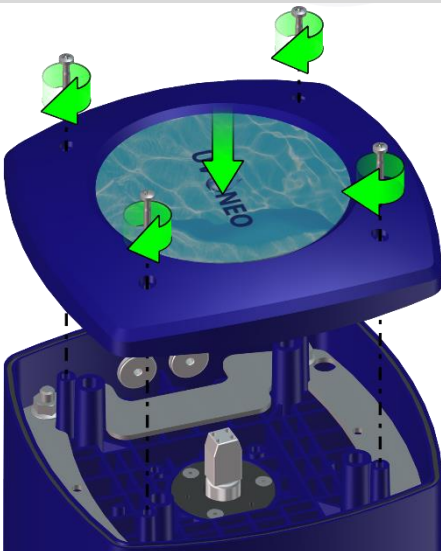
Take hold of the new lamp taking care not to place your fingers outside the cap. (if you do, clean the lamp with a soft cloth and some methylated spirits).
 Carefully and fully insert the lamp into the quartz tube.

7.



Plug again the connector on the lamp (Do not force : there is a way to plug it).

8.



Mount the cover then the screws



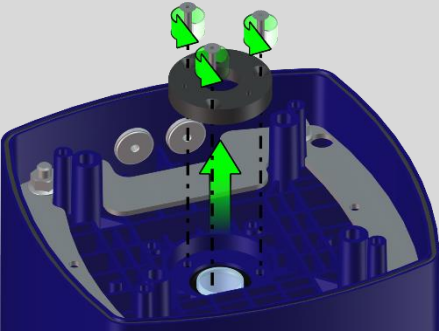
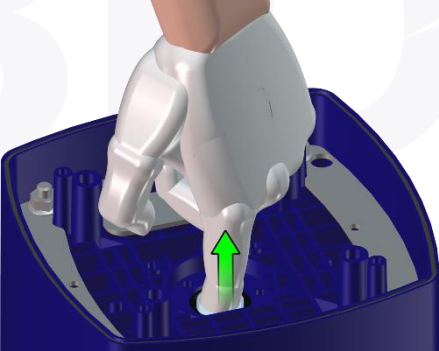
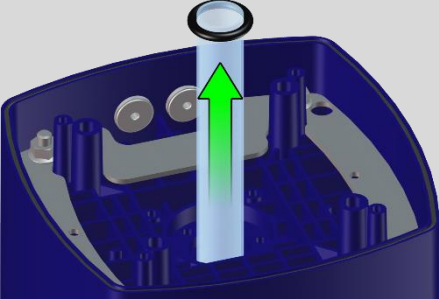

9.

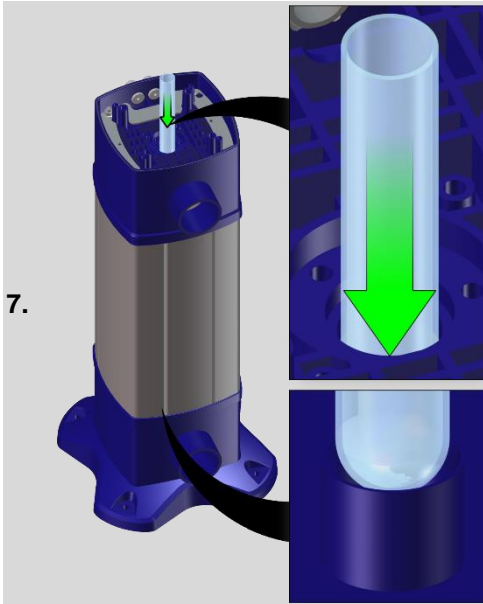


- Make sure the lamp cover is in place and in good condition.
- Connect the power cable to the mains socket.
- Open the reactor inlet/outlet valves and close the bypass
- Fill the installation with water by starting the filtration and check that there are no leaks
- Make sure that the indicator light on the electrical box lights up

2. Quartz sleeve dismounting

Every year you must check that the quartz sleeve has not become opaque due to scale deposits. It should be **completely transparent** not to reduce the UV radiations.

1.  **The sterilizer MUST be POWERED OFF, BY-PASSED and fully DRAINED.**
Once by-passed and powered off, the reactor can be drained by loosening the lower union.
2.  Remove the lamp (see previous paragraph)
3.  Remove the sealing washer by unscrewing the 3 screws with an Allen key (size 2.5).
4.  Remove carefully the quartz sleeve :
Insert a thumb or finger in the sleeve and withdraw it gently until the seal comes free from its housing, while remaining well aligned with the axis.
5.  Take hold of the quartz sleeve and extract it fully, making sure that you keep it **CORRECTLY** aligned with the axis.
6.  If whitish calcium deposits are present, you must clean it. This is done using spirit vinegar or acid and a soft cloth. **The quartz must not be scratched as this would change the ultraviolet radiation qualities.**

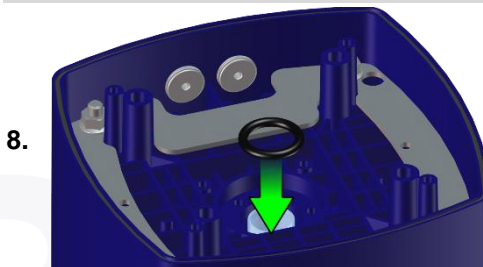


7.

While remaining well aligned with the axis, introduce the quartz sleeve into the reactor to its guide at the bottom of the reactor.

Wearing clean gloves, position the quartz into the bottom of its holder by using your finger inside the sleeve. A flashlight can help you to see the holder through the quartz.

NB: Be careful not to release the quartz sleeve as long as it is not in its holder, otherwise it could break or be difficult to recover.

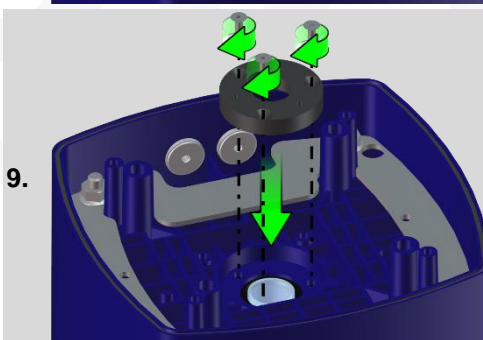


8.

Replace tightening seals :

(Mount a new seal at each lamp replacement)

- Apply water and soap on the seal,
- Position the O-ring around the quartz sleeve
- Push it fully into its housing using your nail (do not use any tools).



9.

Position the sealing washer then mount the three screws.



10.

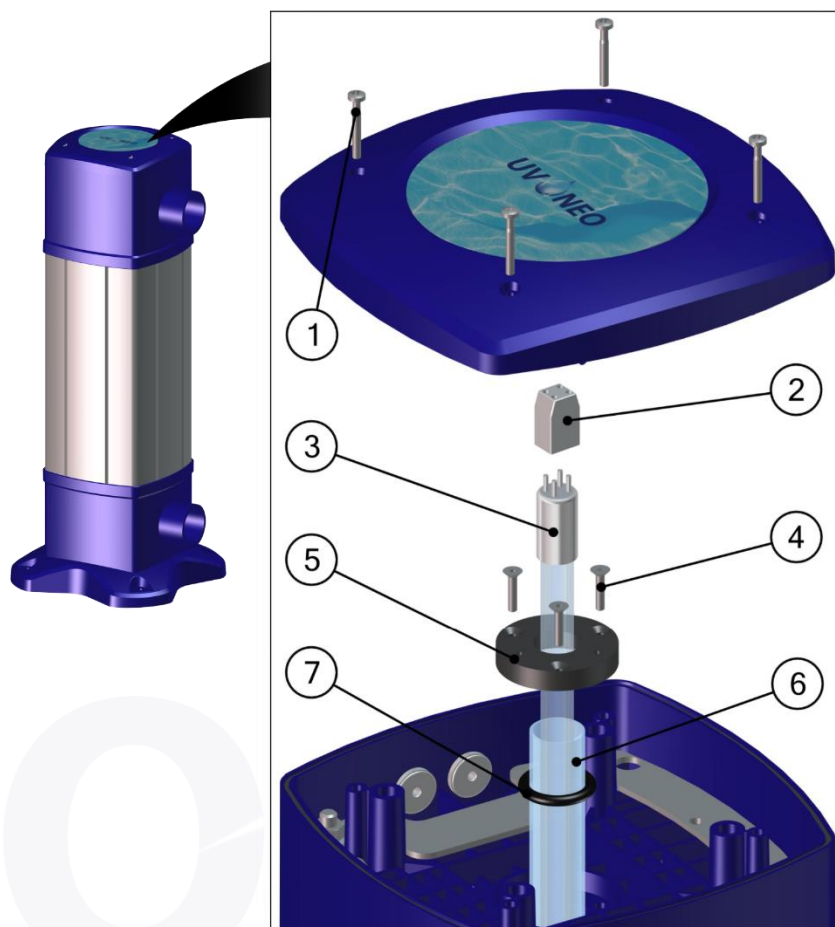
Put the installation back in pressure **before** the reassembly of the lamp and **check that there is no leakage in the quartz sleeve.** Before filling the reactor, remember to tighten the lower union.



11.

Refit the lamp (see previous paragraph).

H. BLOWN UP VIEW



TAG	DESIGNATION	REFERENCES		
		UV NEO 12	UV NEO 18	UV NEO 25
1	Screw CLZ M4X30	VIS001546	VIS001546	VIS001546
2	Connector	ELE002603	ELE002603	ELE002603
3	UV lamp	LPE000004	LPE000005	LPE000006
4	Screw FHC M4X20	VIS000031	VIS000031	VIS000031
5	Upper bracket (sealing washer)	USI014441	USI014441	USI014441
6	Quartz sleeve	QUA000017	QUA000018	QUA000019
7	O ring Ø25	JTS000100	JTS000100	JTS000100
Inside electrical box	T type fuse (delayed) (5x20mm 1A)	ELE001837	ELE001837	ELE001837
	Ballast 40-100W	BAL013337	BAL013337	BAL013337

I. TROUBLESHOOTING

The list below will help guide you through any problems you may have at time of initial installation or in the future. For additional assistance, contact your supplier or BIO-UV Group at the address, e-mail or phone shown at the end of this manual.



Any operation on the device must be carried out by qualified and skilled personal.



The device must be disconnected from the electrical network before any intervention.

Please unplug the power cord from the electrical box.

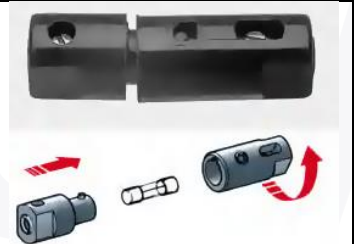


Due to BIO-UV Group's commitment to product improvement, all product descriptions or specifications are subject to change without notice.

1. Fuse replacement

This operation must be carried out by qualified and skilled personal.

- Open one of the sides of the box by using a Phillips screwdriver in order to access the interior of the device.
- Press then turn the fuse holder to release and open it.
- Replace the fuse
- Put the fuse holder back in place by closing it and then making a quarter turn to lock it.
- Finally, close the box.



2. Defects diagnosis

Defect	Possible causes	Remedies	
The lamp operation indicator does not light up	The ballast is in safety (micro cut or fast on / off)	Switch off the electrical box for a few seconds then switch it on again.	
	The filtration timer doesn't trigger the lamp ignition	Verify that the filtration timer has power. Test the filtration timer. Check that the power voltage is the same as indicated on the electrical label on your UV NEO unit.	
	Power is off		Check the plug is well connected and the wall socket is electrically supplied
			Check the state of the power cord
	The fuse of the switch is cut off	Replace the fuse	
	The lamp is bad connected on its connector	Check good connection of the lamp	
	The lamp cable is damaged or disconnected	Check state of the lamp cable and its connections	
	The lamp is at the end of its life or damaged	Replace the lamp	
The electronic ballast of the electrical box is defective	Contact BIO-UV Group support		

The Water Is Green	The UV rays generated by the UV NEO unit are not effective or are not being generated by the UV lamp.	Check the lamp to make sure it is on. If it is not on, follow the procedures above.
		Run your unit longer. If your unit is operating on a time clock, run the circulation pump longer to allow the UV NEO unit to function fully.
		Clean the quartz sleeve.
		Replace the UV lamp if it is nearing the 13 000 hours useful life. At 13 000 hours of operation, the UV lamp is 80% as effective as it was when it was new. This is normal for all low-pressure type UV lamps, which are the longest life lamps used in this type of application.
		If your UV NEO unit is installed on a swimming pool, shock the pool with the sanitizing chemical you normally use and balance the pool water as per your chemical manufacturers specifications.
Water is coming out of the plastic cover	The O ring of the quartz sleeve is defective	Check state of the O ring and change it if necessary
	The quartz sleeve is cracked.	Check state of the quartz sleeve and change it if necessary
	The reactor is deformed by overheating due to operation in air (without water)	The reactor is damaged. Contact BIO-UV Group to repair or replace the unit.

J. FAQ

Here are a number of FAQ's that will answer some of the most common questions.

➤ **Is the UV NEO system designed for salt water use?**

These units are made of plastic and are compatible with salt water.

➤ **Will a time clock on my pool shorten my UV lamp life?**

Some shortening of the lamp life can be expected when the unit is turned off and back on frequently. However, a daily on/off cycle will not create a major lamp life issue. Frequent on/off cycles should be avoided but filtration should be performed at least once a day.

➤ **Does UV have a residual effect on water?**

No, UV radiation is only used as a sanitizing factor and only works on water passing through the NEO UV system.

➤ **Can the UV NEO unit be mounted horizontally?**

No, vertical mounting is required to maintain the weatherproof integrity of the lamp cover and to ease maintenance above the unit.

➤ **Can the UV NEO unit be installed below the pond or pool waterline?**

Yes, respecting inlet by the bottom of the unit

➤ **Can multiple units be used together for larger systems?**

Yes, you can add any number of UV NEO units to a plumbing bypass manifold system to allow for larger outputs and flow rates beyond the capacity of a single UV NEO 25 unit. BIO-UV Group also manufactures large capacity systems like MP series. Contact BIO-UV Group or your supplier for information on the product line, or to obtain a drawing showing the proper method of plumbing multiple units for larger applications.

K. RECYCLING

1. Lamps and electronic components



In accordance with WEEE Directive 2012/19 / EU on electrical and electronic equipment waste, **electronic components and old lamps must be collected by a specific process and must not be disposed of in a conventional waste bin.** Old but intact lamps can be returned to BIO-UV (approved organization for UV lamp recycling) or recovered by another approved company for lamps and electronic components recycling



Lamps, containing mercury, must be very carefully handled and stored to prevent any breakage and mercury dispersion.

2. Mercury recovery



For lamps breakages on site, mercury recovery kits are available. If needed, please contact BIO-UV or your recycling organization for information to obtain this kit.

Otherwise kits can be found at the following addresses

<https://www.fishersci.fr/shop/products/mercury-collection-kit/11965295> (ref:OUT014179)

<https://www.sigmaaldrich.com/catalog/product/aldrich/634506?lang=fr®ion=FR>

<https://www.newpig.com/pig-mercury-spill-kit-in-bucket/p/KIT600>

Mercury can be recovered without this kit but it is recommended to consult your approved recycling organization before any action



For the mercury recovery, we strongly advise you to wear gloves, a mask and glasses.

L. WARRANTIES

Units in the BIO-UV range are guaranteed subject to the following conditions:

- **2 years** for the PVC reactor.

Warranties exceptions:

Damages caused by overpressure (water hammer)
Overtaking of the maximum operating pressure
No respect of the installation recommendations
A reactor that has run without water
Damages caused by freezing.

- **2 years** for all electrical components except the UV lamp (consumable).

Warranties exceptions:

Electrical components are not guaranteed against overvoltage and lightning damage
Use of parts that don't come from BIO-UV
No respect of the installation recommendations
A reactor that has run without water
No respect of the use and maintenance recommendations.
Improper power supply



Caution: the quartz tube and the lamp are not guaranteed against breakage.

- **Faulty parts must be returned to BIO-UV**, with details of the **unit type** and **serial number**, for exchange after technical evaluation.
- **Shipping costs will be shared** between the retailer and BIO-UV.
- **The guarantee** runs from the date indicated on the purchase invoice of the device
- **If the instructions for installation and use are not followed**, BIO-UV cannot accept responsibility and the guarantees will be considered null and void.

How to contact the BIO-UV Team.

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