REACTORS IN THE UV MULTILAMP RANGE
WITHOUT CLEANING

(Picture UV 4205 HO)

INSTALLATION AND MAINTENANCE MANUAL

EPA Registered
#075659-FRA-001

BIO-UV®
ULTRAVIOLET SOLUTIONS
UVPS subsidiary of the BIO-UV

COMPLIANCE CERTIFICATE

CE

CERTIFICATE OF CONFORMITY

BIO-UV and this subsidiary, hereby declares that the following products

UV multilamp range

comply to the following standards:

NF EN 60598-1 + A11 (2001)
CEM : EN55015 (Ed.00) + A1 (Ed.01)

Number and year of EC stamp:

CG-03-006 dated 29/01/2003
LS-03-51003/NL dated 20/02/03

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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 optimise the operation of your reactor.

CONTENTS : **pages**

A. TECHNICAL CHARACTERISTICS

UV HO RANGE	3205 HO	4205 HO	5205 HO	6205 HO	6273 HO
REACTOR					
Material	Stainless steel 316L				
Finish	Mirror polish				
Maximum service pressure	3 Bars				
Weight (kg) (1)	25				37
Ø and body length (mm)	204 x 830				273 x 830
Overall length (mm) (1)	980				1010
Volume (litres)	26				49
Connection type	Stainless steel 316 L male collar				
Standard Connection	2 ½ inches				
ELECTRICAL UNIT					
Type	ABS				
Dimensions (mm)	400 x 300 x 180	500 x 400 x 200			
Weight (kg)	6	8		9	
Power supply	Single-phase 240V				
Power supply wiring	3G1,5mm²				
Differential protection	30 mA				
Thermo magnetic protection	6 A				
Circuit breaker tripping curve	Curve C				
Fuse	-				
On / Off switch	Yes				
Power on indicator light	-				
UV lamp indicator light	Yes				
Display (1)	Electro-mechanic hour counter				
Protection index	IP 54				
UV-C LAMP					
Number of lamps	3	4	5	6	6
Electrical power	261 W	348 W	435 W	522 W	522 W
Unit UV-C power	28 W	28 W	28 W	28 W	28 W
Total UV-C power	84 W	112 W	140 W	168 W	168 W
Average lifetime	13 000 h	13 000 h	13 000 h	13 000 h	13 000 h

(1) Caution, with a cleaning system these values change.

B. MAINTENANCE FILE

CAUTION:
This sheet must be kept up to date.
It provides a record of the **reactor's operating cycle**.

Date	Action	By

C. WARNINGS AND SAFETY

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

Read all the instructions in this manual before switching on the BIO-UV appliance.

INSTALLATION

RECOMMANDATIONS

The reactor must be installed: - in a technical room, protected from light and rain, - after the filter(s), - in a dry zone, ambient humidity must be < 80%.
The installation zone temperature must be within 0°C and 40°C.
Keep any sources of hydrochloric acid vapours away from the installation.
The electrical unit should be positioned: - so that it is protected from water, - at eye level.
The air vent of fan must not be obstructed. **The cable length** between the UV reactor and its electrical unit must not be modified. **Make sure you choose a position where the lamp can be taken out**: the AVAILABLE HEIGHT should be double the total height of the appliance.

● **The equipment must always be filled with water when operating** and the air must be bled out of it.
We recommend the presence of a by-pass.

● **Before accessing the connection terminals, ensure that all supply circuits are disconnected.**

● The reactor installation as a whole must be protected with a **suitably adapted circuit breaker.**
(See A. Technical characteristics)

● Check that cable complies with legislation and the required power level.
(See A. Technical characteristics)

● If, for installation reasons, the power supply cables connecting the cabinet to the reactor have to be shortened, **take care to fully crimp the new end fittings at each end of the cables.**

USE AND MAINTENANCE

● Allow the ultraviolet lamp to cool for at least 30 minutes before handling.

● **Never look at the ultraviolet lamps when lit.** This may cause severe injuries or burns and may even lead to loss of eyesight.

● Do not touch the ultraviolet lamp with bare hands, as these would leave impurities that shorten the life of the lamp. If you do touch it: clean with alcohol or white vinegar.

● 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.

● Do not use the reactor if the **power supply wire is worn or damaged**. In this case it should be replaced.

● If the connecting cable between the reactor and the electrical cabinet is damaged, it must be replaced by a special cable available as a spare part.

● **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.

● 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 restart the system until the electric unit, the covers exterior elements of the reactor are correctly back in place.

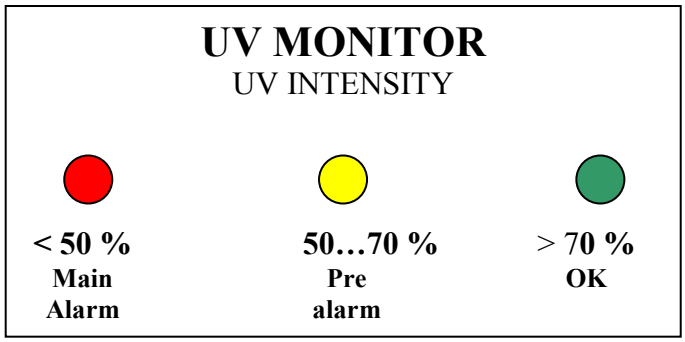
● Do not use the BIO-UV reactor for any other use than that for which it was designed.

D. STARTING UP

1	Check that the reactor BIO-UV is properly mounted on your installation.
2	Start your installation to fill the pipes with water.
3	**Purge the air of the reactor:** - close the valve upstream of the reactor, - unscrew the drain plug on the top of the body reactor, - open the valve upstream of the reactor slowly and close it when the water is forced out through the drain plug, - re-tighten the drain plug and open the valve upstream of the reactor.
4	**Check the water tightness of the unit.**
5	**Check** that the electrical connection of the UV unit is compliant. **Check** that the top of the reactor is correctly positioned.
6	Set the ON/OFF UV unit switch to the ON position and check that the lamps are working properly: the indicator light for each lamp should be lit.
7	Check that the hour counter is running.

E. MANUAL OF THE MONITEUR (Option)

Your UV equipment is fitted with a UV monitor and a UV-C radiation measurement cell.



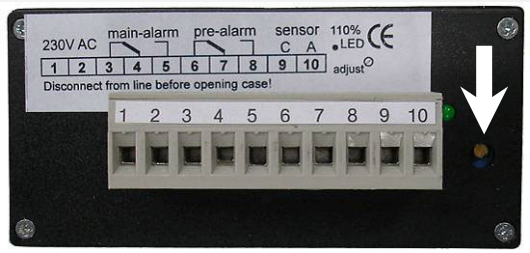
This monitor will indicate the gradual reduction in the intensity of the lamps throughout their lifetime but may also provide a warning of dirt being deposited in the quartz sleeve or on the UV-C radiation measurement cell.

OPERATION

1. Switch on the lighted switch on the front of the electrical unit..
2. The UV C lamps will heat up to their maximum output level in 2 to 5 minutes (depending on the temperature of the liquid being treated).
3. You now need to calibrate the cell in its liquid environment:

CALIBRATION of the UV-C ray measurement cell
(Do it at each change of lamp and cleaning of sensor)

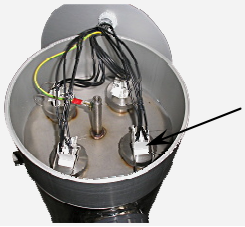
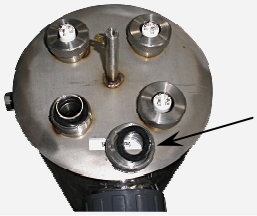
1. Open the front of the electrical unit.
2. Take a small screwdriver.
3. Turn **gently** the small screw at the back of the monitor (next to a green LED) clockwise until the LED light green.

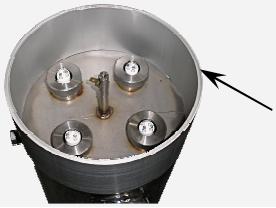
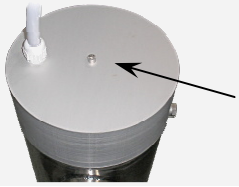


Calibration should result in a **green fixed LED** on the front and back face of the UV Monitor**.**

F. CHANGING UV LAMP AND QUARTZ SLEEVE

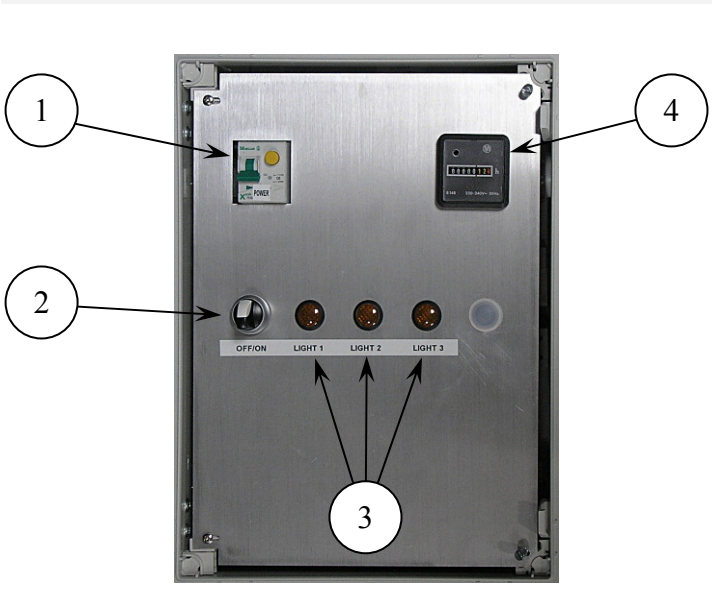
When a lamp is defective, we recommend to change all lamps and to keep those still valid for the next repairs.

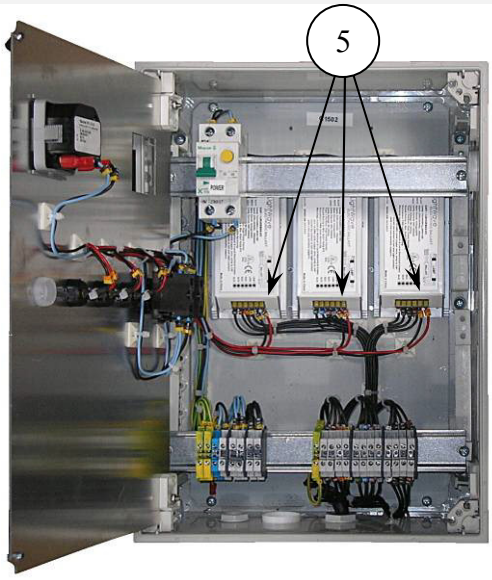
1		**SWITCH OFF the reactor CUT the POWER source and EMPTY IT.**
2		Unscrew and remove the cover.
3		Unplug each connector of lamp and the ground plug if necessary.
4		Remove the support from the cover.
5		Make sure that the UV lamp is cooled before handle it.
6		Take out the UV lamp (if necessary use the connector) and place it on a clean and soft surface. **Carry out this operation CAREFULLY** taking care not to place your fingers outside the cap.
7		Undo the stainless steel nut Remove the flat washer.
8		<u>Gently remove the quartz sleeve:</u> Insert a thumb or finger in the sleeve and withdraw it until the seal comes free from its housing.
9		Take hold of the quartz sleeve and extract it fully making sure that you keep it correctly aligned with the axis.

10		**Clean the quartz sleeve** with acid or white vinegar or replace it if necessary.
11		With a finger inside the sleeve, insert the quartz sleeve into the equipment up to its housing at the bottom of the reactor. The quartz should protrude slightly, i**t should not be dropped right to the bottom**. If the quartz is correctly positioned in the base, when you press it, it feels flexible (pneumatic effect).
12		<u>Change the quartz seals:</u> (Put a new seal at each change of lamp) • lubricate the seal using food grade grease, • position it around the sleeve, • push it fully home in its housing using your nail (do not use tools).
13		Replace the flat washer. Re-tighten the nut by hand, tightening it normally.
14		Put the installation back in pressure **before** the reassembly of lamps and **check that there is no leakage in the quartz sleeve**.
15	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).	
16		Fully engage the lamp in the quartz sleeve.
17		Refit the support from the cover.
18		Reconnect each lamp connector. (Do not force the connector into place: There is a specific connection direction) and clip the connector onto the stainless steel nuts. Reconnect the grounding terminal lug.
19		Refit the cover.
20		Check the calibration of the UV-C ray measurement cell. (See chapter MANUAL OF THE MONITOR).

G. ELECTRICAL UNIT

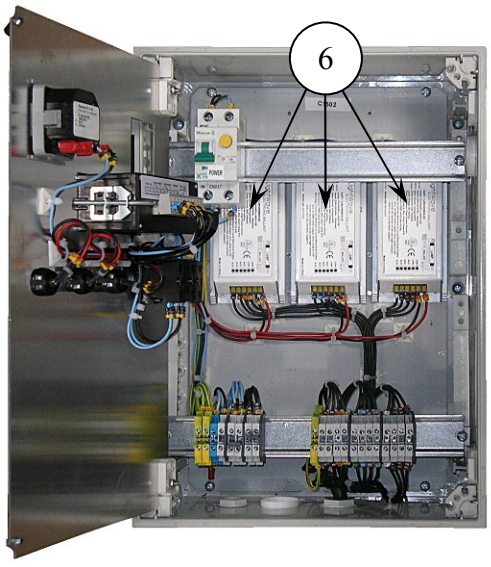
Electrical unit without monitor:





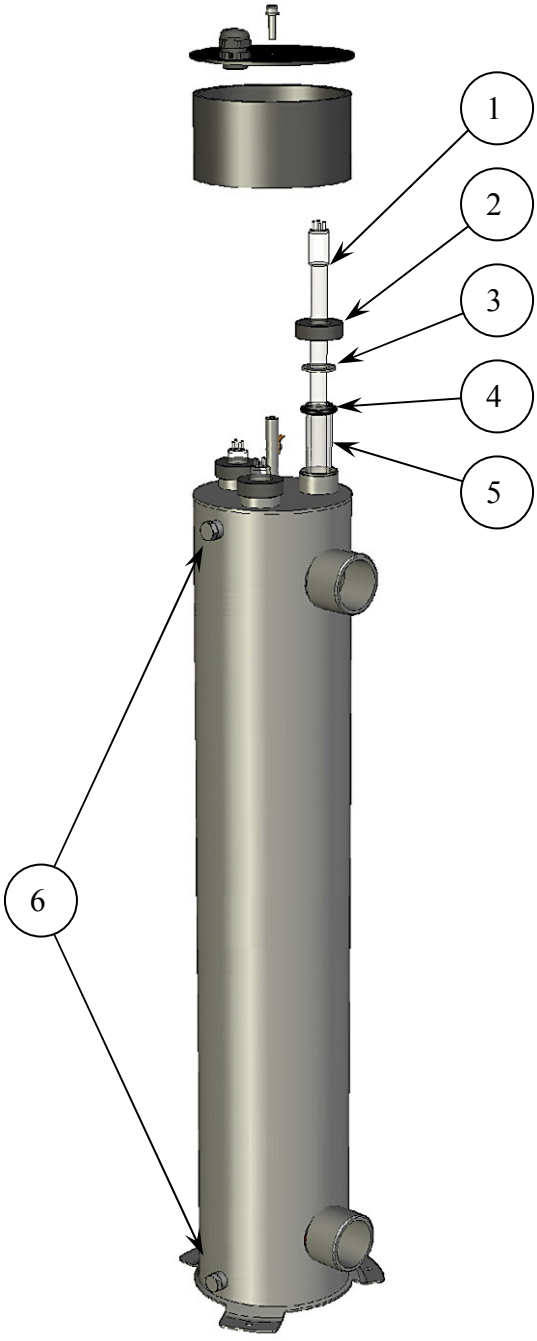
n°	Designation	Tag	References and quantities by reactor									
			3205 HO	Qty	4205 HO	Qty	5205 HO	Qty	6205 HO	Qty	6273 HO	Qty
1	**Differential circuit breaker**	D	ELE003555	1	ELE003555	1	ELE003555	1	ELE003555	1	ELE003555	1
2	**On / Off switch**	C	ELE000271	1	ELE000271	1	ELE000271	1	ELE000271	1	ELE000271	1
3	**Orange light**	H	ELE002652	3	ELE002652	4	ELE002652	5	ELE002652	6	ELE002652	6
4	**Hour counter**	C	ELE000026	1	ELE000026	1	ELE000026	1	ELE000026	1	ELE000026	1
5	**Ballast**	B	BAL000026	3	BAL000026	4	BAL000026	5	BAL000026	6	BAL000026	6
6	**Fan**	M	-	-	-	-	ELE001087	1	ELE001087	1	ELE001087	1

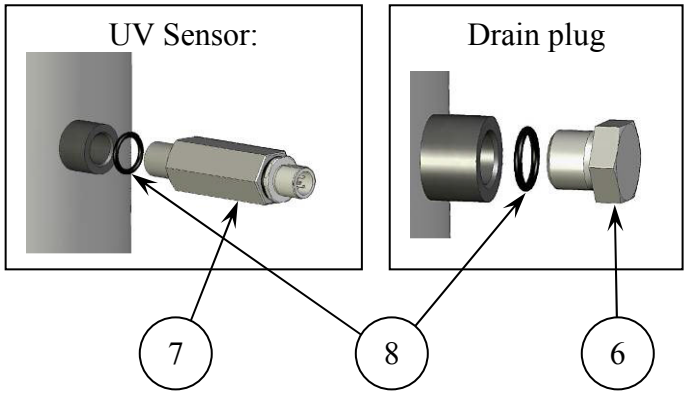
Electrical unit with monitor Pro8:



n°	Designation	Tag	References and quantities by reactor									
			3205 HO	Qty	4205 HO	Qty	5205 HO	Qty	6205 HO	Qty	6273 HO	Qty
1	**Differential circuit breaker**	D	ELE003555	1	ELE003555	1	ELE003555	1	ELE003555	1	ELE003555	1
2	**On / Off switch**	C	ELE000271	1	ELE000271	1	ELE000271	1	ELE000271	1	ELE000271	1
3	**Orange light**	H	ELE002652	3	ELE002652	4	ELE002652	5	ELE002652	6	ELE002652	6
4	**Hour counter**	C	ELE000026	1	ELE000026	1	ELE000026	1	ELE000026	1	ELE000026	1
5	**Monitor Pro8**		ELE000619	1	ELE000619	1	ELE000619	1	ELE000619	1	ELE000619	1
6	**Ballast**	B	BAL000026	3	BAL000026	4	BAL000026	5	BAL000026	6	BAL000026	6
7	**Fan**	M	-	-	-	-	ELE001087	1	ELE001087	1	ELE001087	1

H. BLOWN UP VIEW





N°	Designation	Reference
1	**Lamp**	LPE000005
2	**Nut**	USI000018
3	**Flat washer**	PIE000659
4	**Seal**	JTS000100
5	**Quartz sleeve**	QUA000018
6	**Drain plug**	ACC000410
7	**UV Sensor**	ELE000489 or ELE002114*
8	**Seal**	JTS000230

* Only for UV units with a monitor MIII

WARRANTIES

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

- **5 years** for the stainless steel reactor (materials and welding) except in the event of use in a highly corrosive environment (brackish or very salty, e.g.: seawater).
- **2 years** for all other components excepting the UV lamp (consumable).

Electrical components are not guaranteed against overvoltage and lightening damage.

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 day of installation: this date must be notified to BIO-UV by returning the guarantee validation form by post or fax.

Caution: If the guarantee validation form is not returned within one month following purchase of the unit, BIO-UV will use the month and year of manufacture of the unit as the guarantee start date.

- **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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ANNEX 1

Clearance dimensions

Blown up view

Designation

ANNEX 2

Electrical diagrams