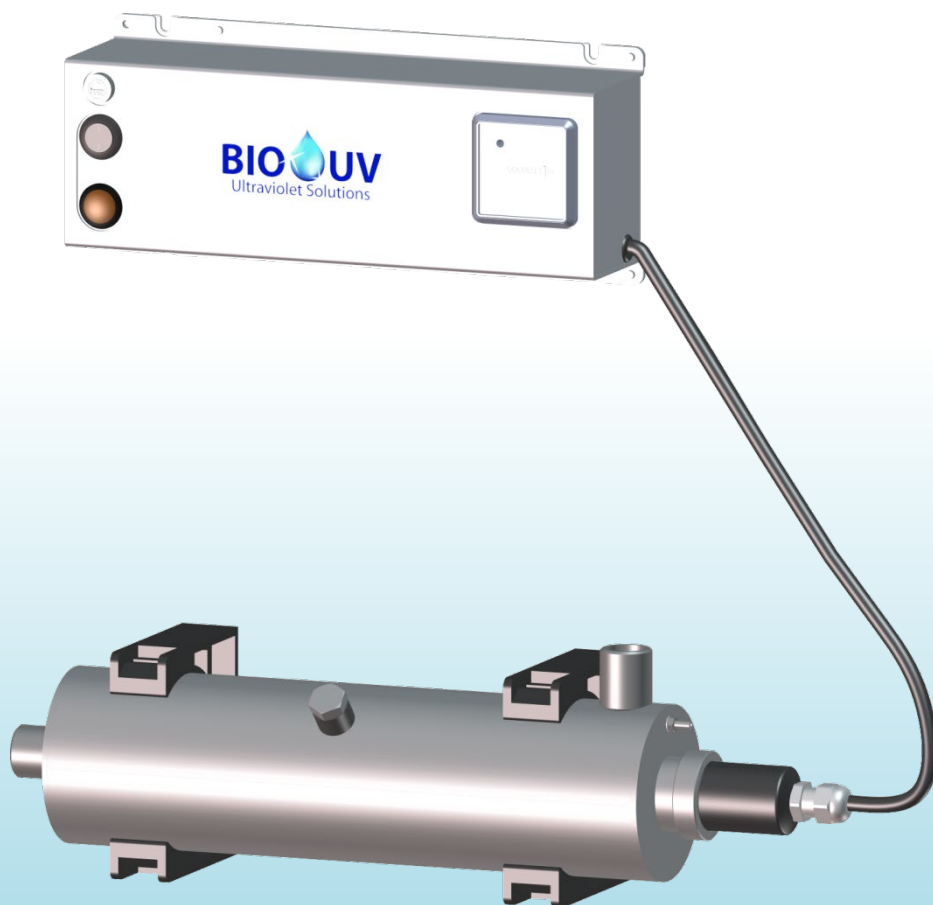




REACTOR IN THE HOME RANGE 230V

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.
 According to the decree of the Health Ministry of the August 21st of 2008, concerning the case of rainwater collected on roofs treatment, this water can not be used for human consumption.
 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. TECHNICAL CHARACTERISTICS

HOME RANGE	UNIT	HOME 2 -230V	HOME 3 - 230V	HOME 4 – 230V	HOME 6 – 230V	HOME 9 – 230V
REACTOR						
Material	-	304L stainless steel	304L stainless steel	316L stainless steel	316L stainless steel	316L stainless steel
Surface finish	-	Mirror polished	Mirror polished	Micro-blasted steel	Micro-blasted steel	Micro-blasted steel
Maximum operating pressure	bar	6	6	10	10	10
Weight	kg	2	3,1	4,5	6,7	8,8
Diameter	mm	90	90	90	114	114
Max length	mm	446	717	1067	1072	1325
Connection type	-	Male threaded	Male threaded	Male threaded	Male threaded	Male threaded
Connection	-	3/4"	3/4"	1"	1"1/2	1"1/2
Top drain	-	No	No	Yes	Yes	Yes
Bottom drain	-	No	No	No	No	No
Head loss (<i>lamps are end of life, at the worst point of the reactor</i>)	bar	<0,01	<0,01	0,01	0,006	0,012
ELECTRICAL CABINET						
Type	-	Independent, wall mounted	Independent, wall mounted	Independent, wall mounted	Independent, wall mounted	Independent, wall mounted
Material	-	Anodized Aluminium	Anodized Aluminium	Anodized Aluminium	Anodized Aluminium	Anodized Aluminium
Dimensions	mm	280x120x70	280x120x70	280x120x70	280x120x70	280x120x70
Cable length between cabinet/reactor (m)	cm	75	75	75	75	75
Weight	kg	0,84	0,84	0,9	0,9	0,9
Cabinet ventilation	-	No	No	No	No	No
Power supply	V	220-240	220-240	220-240	220-240	220-240
Frequency	Hz	50	50	50	50	50
Cable type	-	Mains cable (1,5m)	Mains cable (1,5m)	Mains cable (1,5m)	Mains cable (1,5m)	Mains cable (1,5m)
Current rating	A	0,16	0,26	0,4	0,4	0,5
Absorbed power	W	36	61	96	96	116
Hours run counter	-	Electro-mechanic	Electro-mechanic	Electro-mechanic	Electro-mechanic	Electro-mechanic
Differential protection	-	No	No	No	No	No
Protection	-	Fuse 1A	Fuse 1A	Fuse 1A	Fuse 1A	Fuse 1A
On/Off switch	-	Yes	Yes	Yes	Yes	Yes
Power on indicator light	-	No	No	No	No	No
Lamp indicator light	-	Yes	Yes	Yes	Yes	Yes
LAMPS UV						
Number of lamps	-	1	1	1	1	1
Electrical power per lamp	W	33	55	87	87	105
Lamp type	-	High Output	High Output	High Output	High Output	High Output
UV power per lamp	W	8,5	17,5	28	28	35
Total UV power	W	8,5	17,5	28	28	35
Average life expectancy of 1 stop/start per day	h	13000	13000	13000	13000	13000



B. SAFETY WARNINGS



- Switch off the device 10 minutes before any intervention to let the lamps cool down.
- **Stop the system in the event of a prolonged stop of the water flow**



- **Never expose yourself to the radiation of the ultraviolet lamps when lit.** 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**



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



- **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.
- 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)



- 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 maintenance as soon as possible.
- Do not use the BIO-UV reactor for any other use than that for which it was designed.



C. INSTALLATION GUIDE

1. Foreword

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



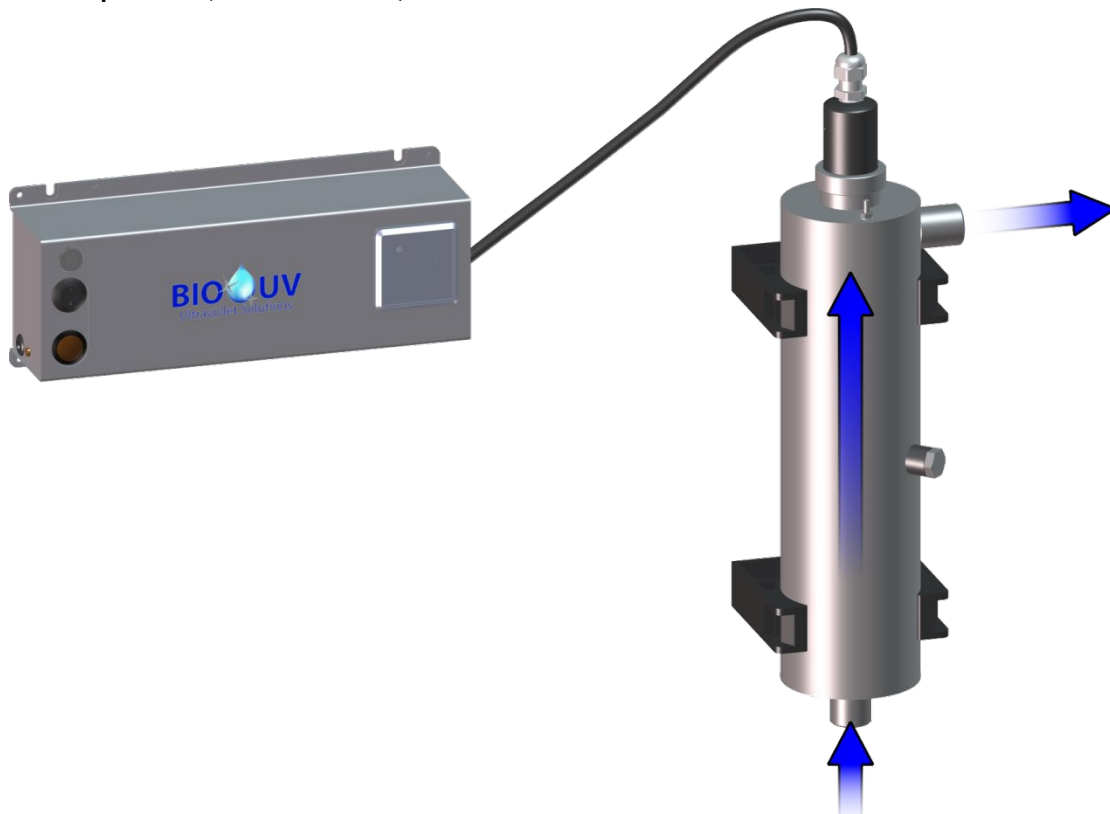
It is necessary to read all the instructions in this manual before switching on the reactor.

2. Usage environment

Location	Room protected from direct sunlight and bad weather
Ambient temperature	between 0°C et 40°C
Corrosive environment	Protect the electrical cabinet from any corrosive emanations (hydrochloric acid vapors, salt...)
Ambient humidity	< 80% (dry area)

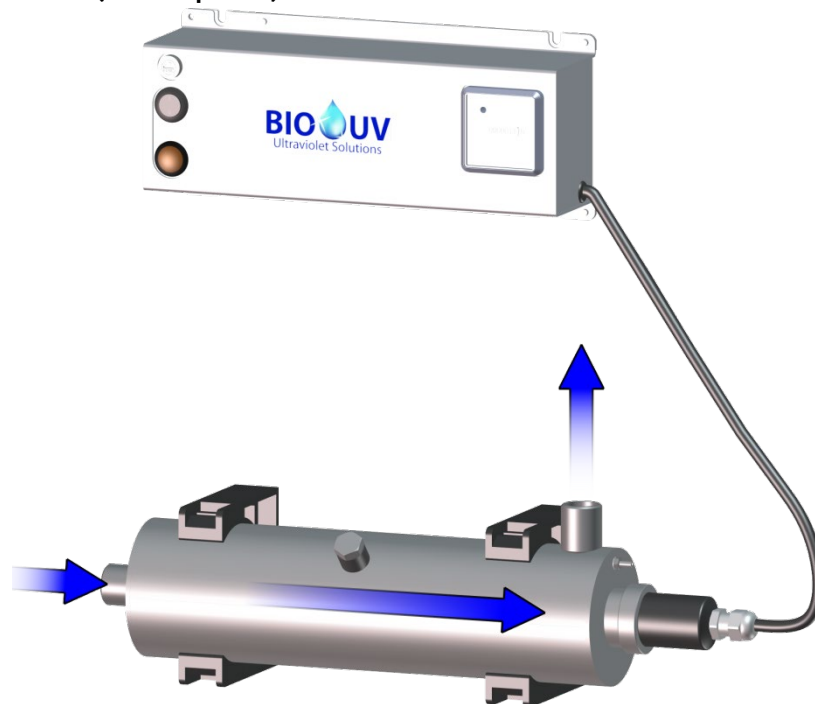
3. Instructions for reactor installation

- ∅ The reactor can be installed from two different ways :
 - In vertical position (inlet downward)





- In horizontal position (outlet upward)



∅ It is necessary to provide a sufficient space corresponding to the reactor length to be able to bring it out of its support easily.

- ∅ The reactor should be installed:
 - as closest as possible from the water supply
 - after a booster
 - after a softener



- The maximum pressure in the line must never be higher than the maximum operating pressure of the reactor (see Technical characteristics, page 3)
- Do not installed a by-pass between the inlet and the outlet of the reactor

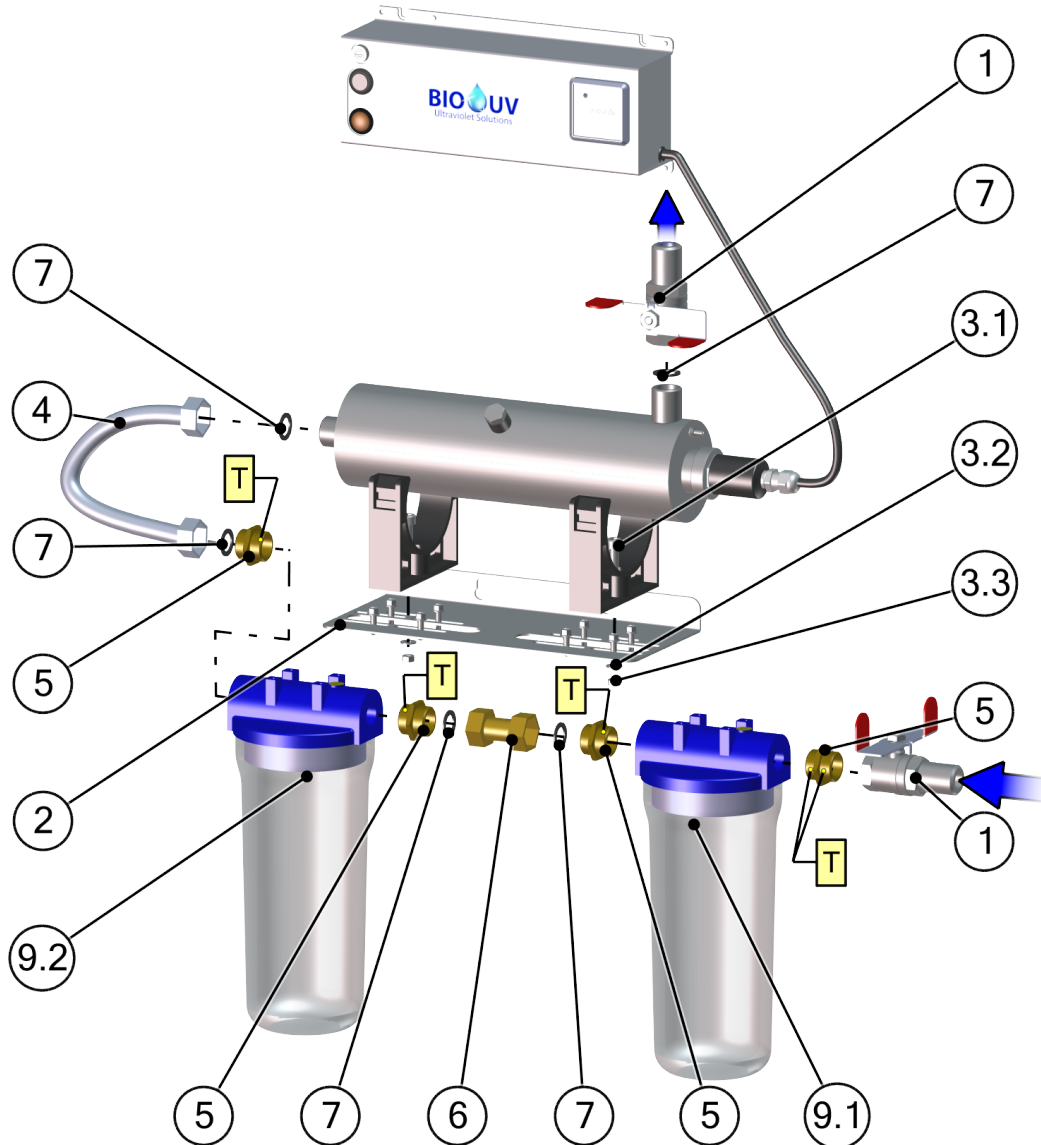
4. Instructions for electrical connections

- ∅ The electrical unit of the reactor is designed to be plugged directly on a wall socket (220V-16A)



5. Filtration kit options

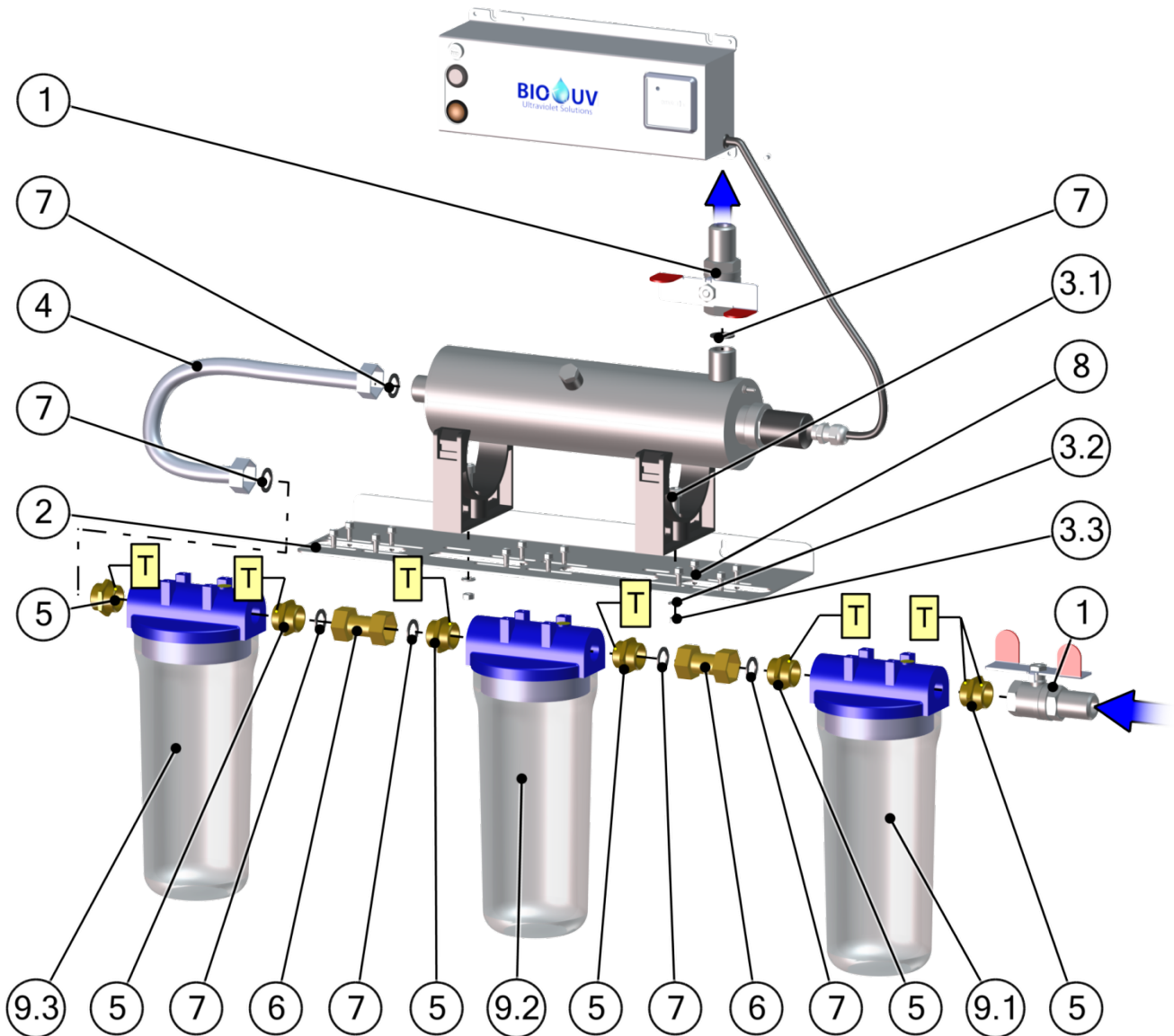
a.) Mounting of the 2 filters kit for HOME 2 and HOME 3



Nr	Part code	Designation	Quantity
1	ACC006536	Brass butterfly valve, 3/4 male/female	2
2	PIE004433	Filter support	1
3.1	VIS004448	UV reactor fixing screw (2 per reactor)	2
3.2	VIS004503	Zinc flat washer Ø6	2
3.3	VIS004504	Zinc nut Th M6	2
4	ACC004439	Hose, stainless steel	1
5	ACC004445	Nipple, male/male	4
6	RAC004444	Rotary coupling	1
7	JTS004442	Fibre seal 20x27	5
8	VIS004440	Filter fixing screw (4 per filter)	8
9.1	FIL004326	Filter bowls	2
9.2			
T	DIV005922	Standard Teflon roll	1
INSTALLATION OF CARTRIDGES IN THE FILTER BOWLS			
	CAR004466	60µ cartridge, washable , to mount on filter bowl mark 9.1	1
	CAR004467	10µ cartridge, washable , to mount on filter bowl mark 9.2	1



b.) Mounting of the 3 filters kit for HOME 2 and HOME 3



Nr	Part code	Designation	Quantity
1	ACC006536	Brass butterfly valve, ¾ male/female	2
2	PIE004434	Filter support	1
3.1	VIS004448	UV reactor fixing screw (2 per reactor)	2
3.2	VIS004503	Zinc flat washer Ø6	2
3.3	VIS004504	Zinc nut Th M6	2
4	ACC004439	Hose, stainless steel	1
5	ACC004445	Nipple, male/male	6
6	RAC004444	Rotary coupling	2
7	JTS004442	Fibre seal 20x27	7
8	VIS004440	Filter fixing screw (4 per filter)	12
9.1	FIL004326	Filter bowls	3
9.2			
9.3			
T	DIV005922	Standard Teflon roll	1
INSTALLATION OF CARTRIDGES IN THE FILTER BOWLS			
	CAR004466	60µ cartridge, washable , to mount on filter bowl mark 9.1	1
	CAR004467	10µ cartridge, washable , to mount on filter bowl mark 9.2	1
	CAR004468	Active carbon cartridge, to mount on filter bowl mark 9.3	



c.) Installation procedure

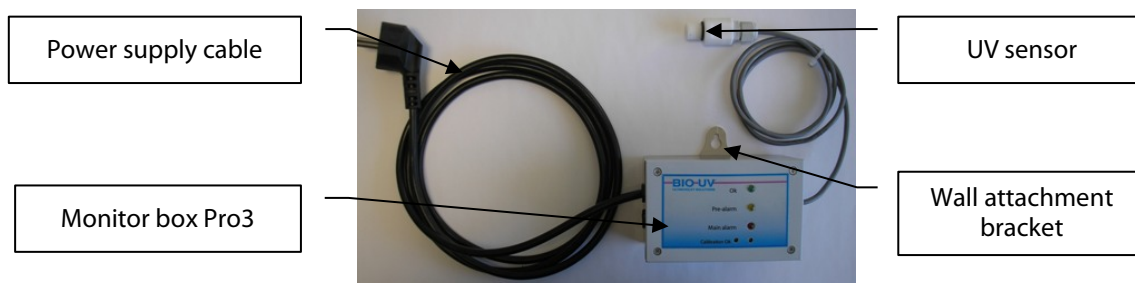
Nr	OPERATION
1	<p>Assemble the filter bowls (9.1/9.2/9.3) together, with the nipples(5), the rotary coupling(s) (6), the seals (7) and Teflon strip (T). According the connection type, the tightening of the connections will be done with seals or Teflon strip (see exploded view)</p> <p>Warning !: Comply with the direction of water circulation in the filters, marked with arrows and the words 'IN' (inlet) and 'OUT' (outlet) on the filter (blue section)</p>
2	<p>Mount the filter support plate (2) on the filter bowls with the screws (8).</p> <p>Tip ! Before performing step 3, we advise you to mark the position of the filter support attachment on the wall.</p>
3	<p>Install the UV HOME reactor on the filter support: To do this, disengage the UV reactor from the black PVC collars Then screw the 2 PVC collars on to the filter support with the screws (3.1), the washers (3.2) and the nuts (3.3) Finally, clip the UV reactor on to the black PVC collars</p>
4	<p>Install the hose (4) between the outlet of the last filter and the UV HOME reactor</p>
5	<p>Install the 2 inlet and outlet valves (1):</p> <ul style="list-style-type: none"> - The first on the first inlet filter - The second on the UV reactor outlet
6	<p>Fix the assembly to the wall Connect it to the water pipe Check hydraulic sealing</p>
7	<p>Fix the electric unit of UV HOME reactor to the wall, Connect the power supply; perform the start-up procedure explained in paragraph D.Starting up, page 11.</p>



6. Option UV sensor and PRO3 monitor

The PRO3 monitor only exist in 230V to plug on a wall socket

This PRO3 monitor will indicate the drop in intensity of lamps during their lifespan and can also provide warning of fouling of the quartz duct or the UV-C radiation measurement cell.



1. Fit the UV sensor on the reactor. If the reactor has already been installed :
 - Turn the UV lamp off
 - Cut the water supply.
 - Empty the UV reactor: Remove the drain plug
 - Carefully screw on the Teflon UV sensor in place of the drain plug. Beforehand check that the watertight seal is correctly positioned
 - Take care not to twist the cable when screwing.
 - Open the water supply and check water tightness.
2. Attach the Pro3 UV monitor box to the wall
3. Connect the electrical power supply to the Pro3 Monitor box
4. Calibrate the UV sensor :
 - Turn the UV lamp on
 - The UV-C lamps will increase in temperature to reach maximum radiation in two to five minutes (depending on the temperature of the liquid to be processed).
 - Make water flows into the reactor by slightly opening a tap (do not forget to turn it off when the sensor calibration is over)
 - It is now necessary to calibrate the cell depending on the liquid to be processed :

CALLIBRATION of the UV-C radiation measurement cell (To be carried out each time the lamp is changed and the cell is cleaned)		
1.	Take a small screwdriver.	
2.	SLOWLY turn clockwise the small screw located under the Main Alarm red LED , until the green Calibration OK LED turns on	
<div style="position: absolute; top: 10px; right: 10px; border: 1px solid black; padding: 2px;">Adjustment screw</div>		
A correct calibration is done when : <ul style="list-style-type: none"> - The green LED (Ok) = ON - The green LED (Calibration Ok) = ON 		

Buzzer option :

The monitor can also be provided with a buzzer that rings when an alarm is enabled (red LED is on)



D. STARTING UP

- 1 First check the reactor and the electrical cabinet have been correctly installed (see C. Installation guide)
- 2 Open the water supply and check there is no leak

After the installation of the reactor BIO-UV on your installation, it can be necessary to carry out a “**VACCINATION**” of the piping:

- 3
 - **Place a disinfectant product** (for example chlorine pellets or active oxygen) preferably in the filter container located upstream of the reactor.
 - **Leave on for 30 minutes.**
 - Open shortly, one by one, each draining point downstream of the system in order to fill the piping with treated water.
- 4 Switch on the On/Off switch.
Check the lamp indicator is on.
- 5 Check hour counter is running..
- 6 At the first start up or when the lamp has been replaced by a new one, proceed to the sensor calibration (option).
- 7 Fill maintenance file (see F. Maintenance, page 14)


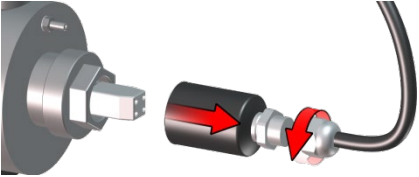
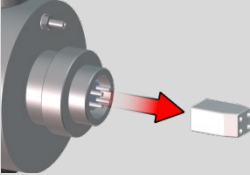
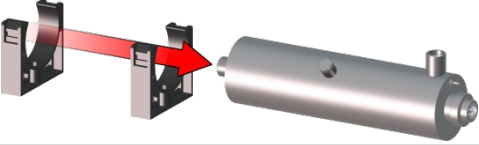

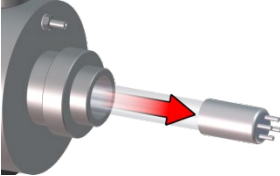
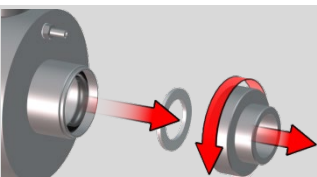
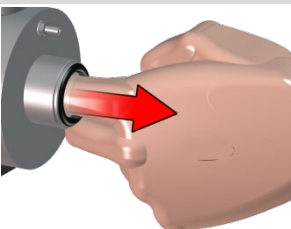
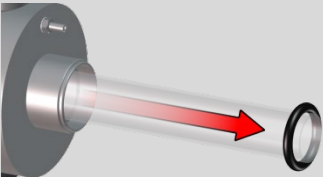


- **The device must run without stop, 24h/24h, with hydraulic load** except in the event of a long halt of the water flow (risk of overheating and deposits on the quartz sleeve).
- **It is preferable to limit the run/stop of the lamp** to optimize their time of efficiency.
- If the reactor has been stop, wait 10 minutes the lamps are cooled before starting them up to spare their lifetime.
- The lamp indicator shows that the lamp is in operation. If the lamp is operating for more than 13000h, this should be replaced even if the lamp indicator is on.



E. PROCEDURE TO REPLACE THE LAMP, THE QUARTZ SLEEVE AND THE SEAL

- Ø These operations must be carried out in case of:
- Replacement of the lamp, quartz sleeve or seal
 - Checking/cleaning of the quartz sleeve
 - Alarm on the PRO3 monitor (option)

1		<p>The reactor MUST be SWITCHED OFF, ISOLATED, DRAINED, UNCLIPPED and INSTALLED VERTICALLY</p>
2		<p>Unscrew the gland to release the lamp cable remove the reactor cover</p>
3		<p>Dismount the lamp connector.</p>
4		<p>Remove the reactor from its support by making it slide through the clips.</p>
5		<p>Make sure that the UV lamp is cooled enough before handle it.</p>
6		<p>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 let the lamp fall into the quartz sleeve, it could break off into the quartz sleeve and damage the quartz</p>
7		<p>Unscrew the stainless steel nut. Remove the flat washer.</p>
8		<p><u>Remove carefully the quartz sleeve :</u> 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.</p>
9		<p>Take hold of the quartz sleeve and extract it fully, making sure that you keep it ABSOLUTELY well aligned with the axis.</p>



10

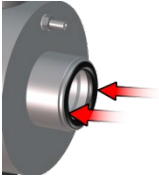


Clean the quartz sleeve with acid or white vinegar or replace it if necessary.

11

While remaining well aligned with the axis, introduce the quartz sleeve into the reactor to its guide at the end of the reactor.
With your finger inside the sleeve position the quartz into the spring seat at the bottom of the reactor. A flashlight can help you to see the spring seat through the quartz.
The quartz should be slightly out (from the thickness of the o-ring), **it should not be totally pushed to the bottom.**
If the quartz is correctly positioned in the seat, flexibility can be felt by pressing on it (spring effect).

12

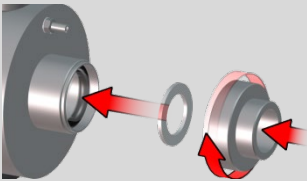


Replace the o-ring :

(Mount a new seal at each lamp replacement)

- Apply water and soap on the seal,
- Position it around the quartz sleeve,
- Fully push it into its location with the nail (do not use tools).

13



Replace the flat washer.

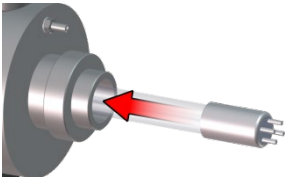
Screw back normally the stainless steel nut with hand

14



Put the installation back in pressure **before** the reassembly of the lamp and **check that there is no leakage in the quartz sleeve.**

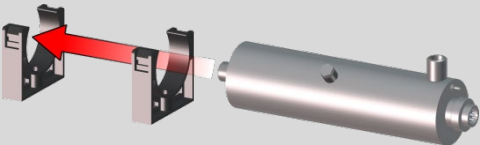
15



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).

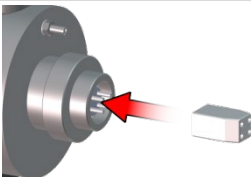
Carefully and fully insert the lamp into the quartz tube.

16



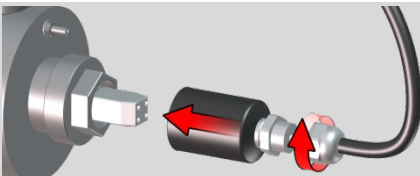
Put back the reactor in position by sliding it through the clips.

17



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

18



Mount the cover.

Fully push the cable and tight the gland.

19



- Calibrate the UV-C ray measurement cell, if your device is provided with this option at each installation of a new lamp.

- Take down the hour counter value at each lamp replacement because this cannot be reset.

18

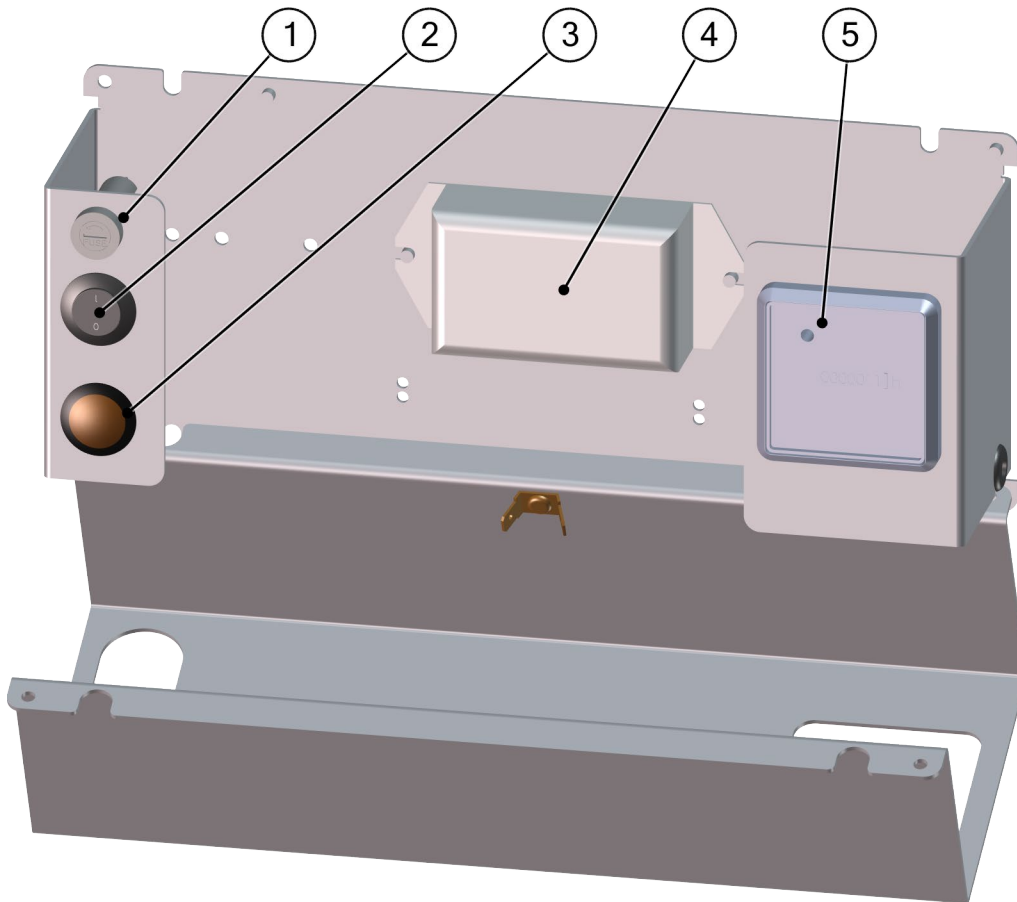


The device is ready for operation.



G. ELECTRICAL DESCRIPTION

1. Electrical unit



MARK	DESIGNATION	REFERENCES				
		HOME 2 - 230V	HOME 3 - 230V	HOME 4 - 230V	HOME 6 - 230V	HOME 9 - 230V
1	Fuse support	ELE000839	ELE000839	ELE000839	ELE000839	ELE000839
	Fusible	ELE001837 (5x20,1A)	ELE001837 (5x20,1A)	ELE001837 (5x20,1A)	ELE001837 (5x20,1A)	ELE001837 (5x20,1A)
2	ON/OFF switch	ELE000770	ELE000770	ELE000770	ELE000770	ELE000770
3	Lamp indicator	ELE000817	ELE000817	ELE000817	ELE000817	ELE000817
4	Ballast	BAL007134	BAL005604	BAL005604	BAL005604	BAL006995
5	Hour counter	ELE000026	ELE000026	ELE000026	ELE000026	ELE000026

Fuse replacement

- If the lamp indicator is off and the counter is not running when the bow is on then the fuse must be replaced
- To replace the fuse, use a flat screwdriver and make a quarter turn to the left to open the fuse support (1)

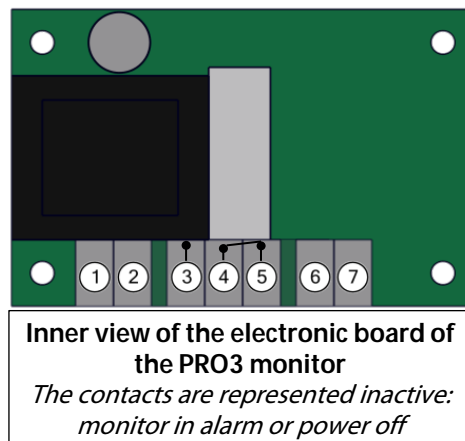


2. Wiring of an alarm contact on PRO3 monitor option

The alarm contact is used to control a safety valve (no water flow), a buzzer, a light... when the alarm is triggered on the PRO3 monitor. It supports a maximum voltage of 230 V and a current of 1A.

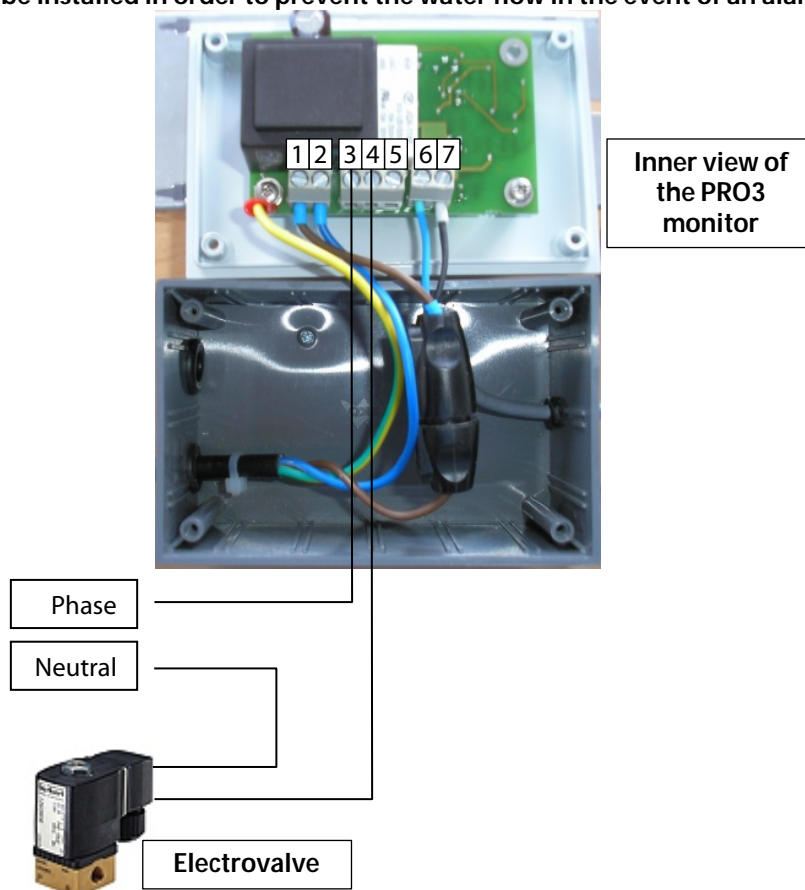
The general alarm fault report is indicated by dry contacts (NO or NC) on the monitor card in the box. The dry contacts must be supplied from the outside in order to retrieve and send the signal.

- **NO (normally open) contact connection** between terminals 3 and 4.
This contact is open in alarm or in the event of a power failure and closed when OK.
- **NC (normally closed) contact connection** between terminals 4 and 5.
This contact is closed in alarm or in the event of a power failure and open when OK.



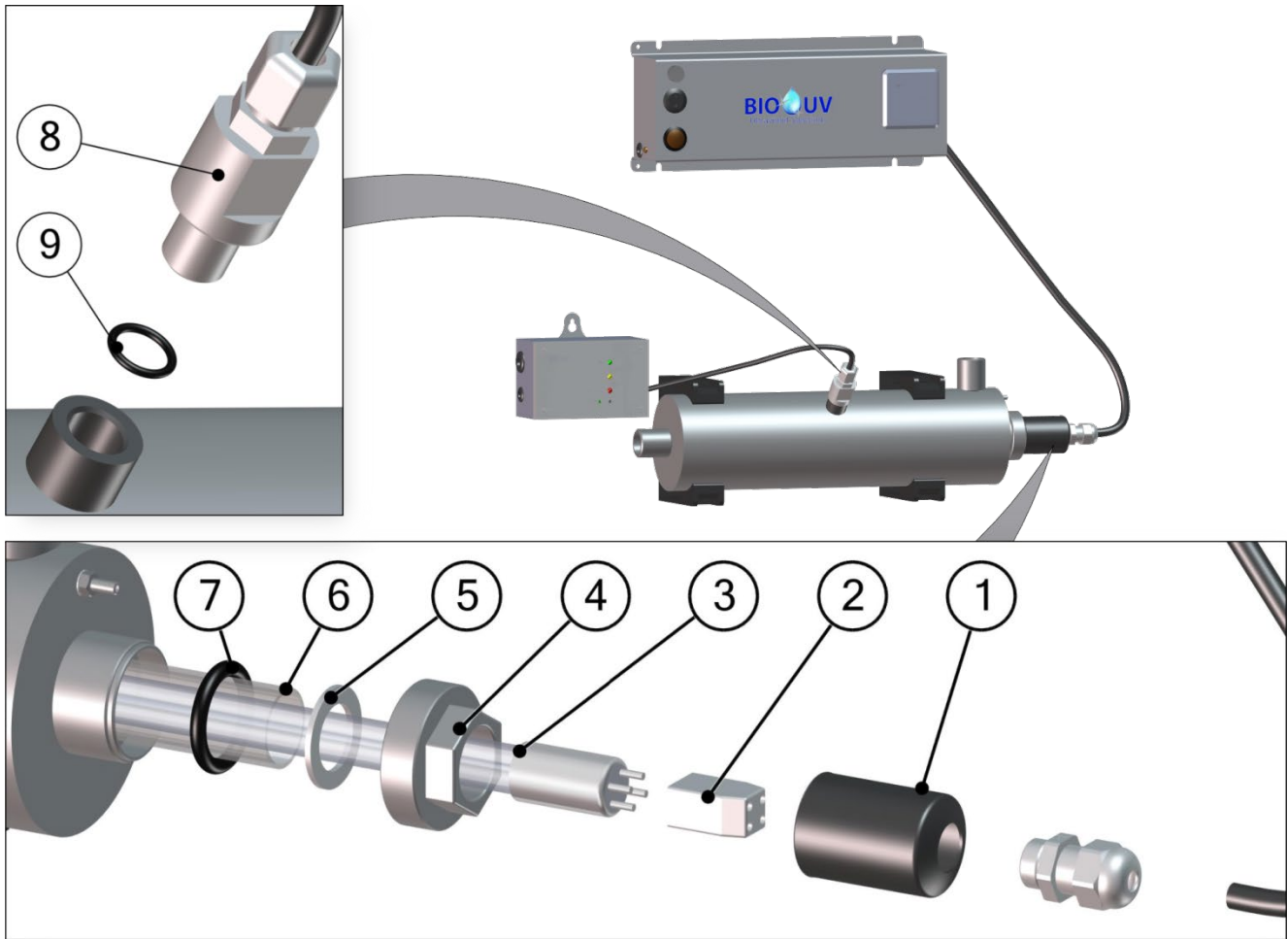
Example of wiring for a NC electrovalve (Normally closed)

The electrovalve must be installed in order to prevent the water flow in the event of an alarm or a power failure





H. BLOWN UP VIEW WITH UV SENSOR OPTION

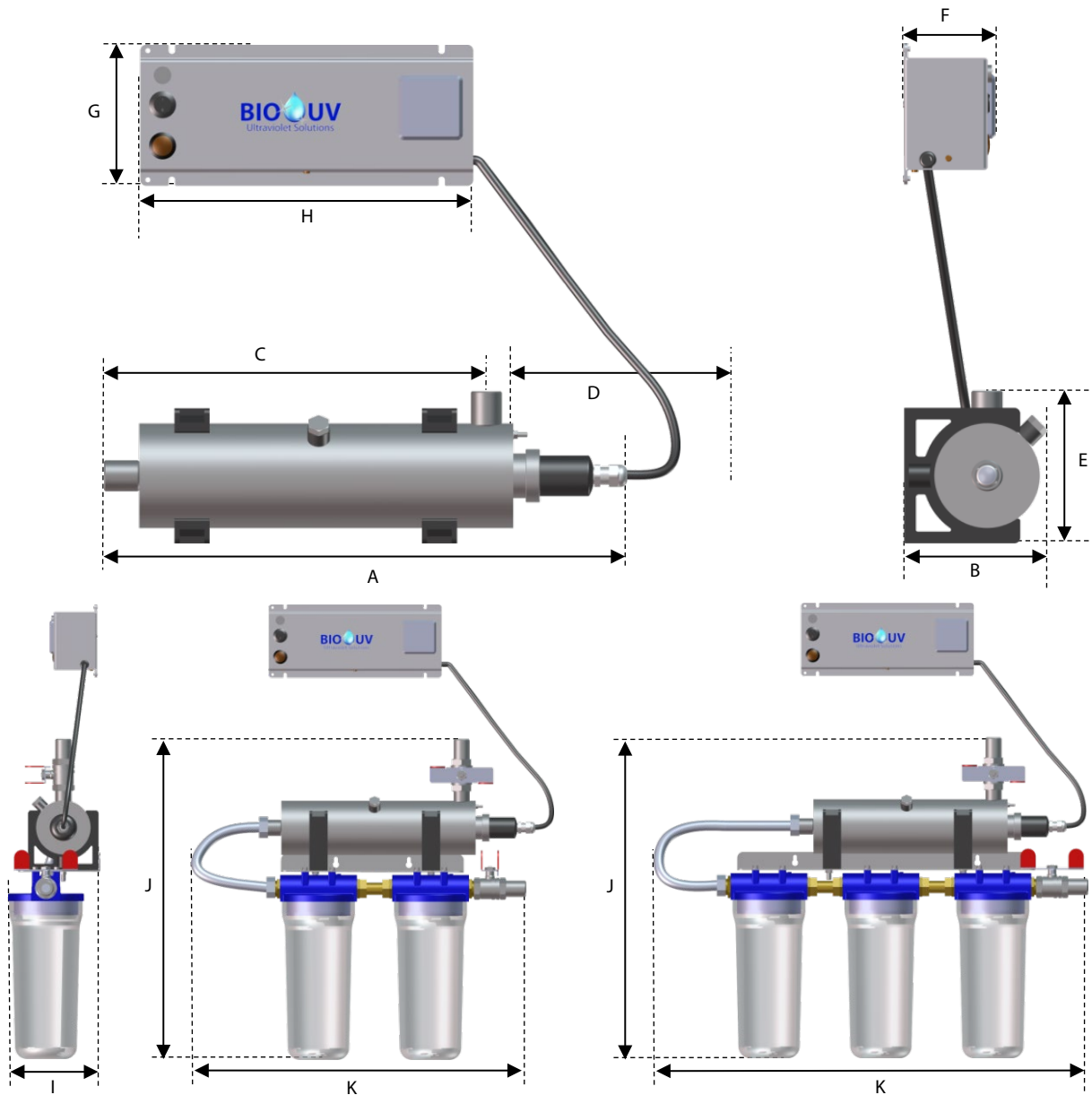


MARK	DESIGNATION	REFERENCE				
		HOME 2	HOME 3	HOME 4	HOME 6	HOME 9
1	Nut protection	VIS004279	VIS004279	USI005243	USI005243	USI005243
2	Lamp socket	EIE002603	EIE002603	ELE002603	ELE002603	ELE002603
3	Lamp	LPE000003	LPE000004	LPE000005	LPE000005	LPE000006
4	Sealing nut	USI004134	USI004134	USI005244	USI005244	USI005244
5	Protection washer	PIE000659	PIE000659	PIE000659	PIE000659	PIE000659
6	Quartz sleeve d25	QUA000016	QUA000017	QUA000018	QUA000018	QUA000019
7	O ring d25	JTS000100	JTS000100	JTS000100	JTS000100	JTS000100
8	Teflon UV sensor (Option)	ELE004721	ELE004721	ELE004721	ELE004721	ELE004721
9	O ring	JTS000230	JTS000230	JTS000230	JTS000230	JTS000230

Note : In standard version, UV sensor is replaced by a draining plug : ACC000410



I. DIMENSIONS



DESIGNATION	A	B	C	D	E	F	G	H	I	J	K	Flanges	Reactor weight (kg)
	Dimensions in mm												
UV HOME 2	446	122	326	446	130	77	120	284				Male threaded 3/4"	3,5
UV HOME 3	717	122	596	717	130	77	120	284				Male threaded 3/4"	5
UV HOME 4	1067	159	871	1067	136	77	120	284				Male threaded 1"	4,8
UV HOME 6	1072	154	865	1072	160	77	120	284				Male threaded 1"1/2	6,8
UV HOME 9	1325	155	1119	1325	158	77	120	284				Male threaded 1"1/2	8,3
KIT UV HOME 2 / 2 FILTERS						77	120	284	152	527	532	Male threaded 3/4"	8
KIT UV HOME 2 / 3 FILTERS						77	120	284	152	527	708	Male threaded 3/4"	8,5
KIT UV HOME 3 / 2 FILTERS						77	120	284	152	527	789	Male threaded 3/4"	9,5
KIT UV HOME 3 / 3 FILTERS						77	120	284	152	527	844	Male threaded 3/4"	10



J. 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, storage near to acid and corrosive products , use of acid hydrochloric).

Warranties exceptions:

- Exceptional cases of corrosion in particular electrolytic**
- Damages caused by overpressure**
- Overtaking of the maximum operating pressure**
- No respect of the installation recommendations**
- A reactor that has run without water**
- Chloride concentration in water higher than 500 mg/liter.**

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

Warranties exceptions:

- Electrical components** are not guaranteed against overvoltage and lightning damage
- Modification and add of components within the electrical cabinet**
- 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.**



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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