

**UV TREATMENT SYSTEM
SYSTÈME DE TRAITEMENT UV
SISTEMA DE TRATAMIENTO UV
SISTEMA DI TRATTAMENTO UV
UV-BEHANDLUNG-SYSTEM
SISTEMA DE TRATAMENTO UV**

EN

HELIOX UV LP

AISI 316 L

HELIOX-10 52206
HELIOX-14 52207
HELIOX-25 52208
HELIOX-30 52209

PE

HELIOX-10 52214
HELIOX-14 52215
HELIOX-20 52216
HELIOX-25 52217

HELIOX UV LP+

AISI 316 L

HELIOX-10+ 52210
HELIOX-14+ 52211
HELIOX-25+ 52212
HELIOX-30+ 52213

PE

HELIOX-10+ 52218
HELIOX-14+ 52219
HELIOX-20+ 52220
HELIOX-25+ 52221



UV

13000 hr

pH

ORP

CE

**INSTALLATION AND MAINTENANCE MANUAL
MANUEL D'INSTALLATION ET D'ENTRETIEN
MANUAL DE INSTALACION Y MANTENIMIENTO
MANUALE DI INSTALLAZIONE E MANUTENZIONE
EINBAU-UND BETRIEBSANLEITUNG
MANUAL DE INSTRUÇÕES E MANUTENÇÃO**

Vers.20160712

ASTRALPOOL 

PLEASE NOTE: This instruction manual contains fundamental information about the safety precautions that should be observed when installing and setting up the equipment. It is essential, therefore, that both the installer and the user read these instructions before installing and using the equipment.
Keep this manual for future reference about operating this device.



Treatment of electrical and electronic devices at the end of their useful life (applicable in the EU only)

Products marked with this symbol cannot be thrown out with domestic rubbish when they reach the end of their useful life. The user is responsible for depositing this type of refuse in a recycling point for electrical and electronic waste. Proper treatment and recycling of this type of waste makes an essential contribution to the conservation of the environment and general health. For more precise information on the collection points for this type of waste, contact your local authorities.

To obtain the best performance from the UV LP/LP+ Treatment Systems, follow the instructions below:

1. CHECK THE CONTENTS OF THE BOX:

You should find the following accessories inside the box:

	UV LP	UV LP+
UV Reactor vessel	●	●
pH and ORP sensors		●
Calibration solutions [pH 7.0 (green) / pH 4.0 (red) / ORP 470 mV]		●
Flow sensor		●
Probe housing		●
Instruction Manual	●	●

2. GENERAL CHARACTERISTICS:

The germicidal effects of ultraviolet (UV) radiation with wavelengths around 260 nm have been known for over 100 years. The use of UV has become more popular in recent years, since it has several advantages over chemical disinfection methods; UV hardly alters the physical/chemical composition of the water, it is effective against any type of micro-organism (algae, bacteria, viruses, spores, yeasts, etc.), and its use reduces the risks associated with handling and dosing potentially-hazardous chemical products. At the same time, UV treatment minimizes the levels of combined chlorine in the pool water, leading to significant savings of water, since it reduces the volume and frequency of water replacement in the swimming pool.

The UV LP/LP+ treatment system, together with the maintenance of a certain level of chlorine in the pool water, guarantees its healthiness. The UV LP/LP+ treatment system should operate while the pool's recirculation system (pump and filter) are running.

The UV LP/LP+ treatment systems have been designed and manufactured using the most advanced technology in UV water treatment, to guarantee long-term operation with minimum maintenance.

- o Available in AISI-316L Stainless Steel and Polyethylene versions.
- o Electronic ballast with integrated controller.
- o Versions available with integrated pH/ORP control (UV LP+ models).
- o Operating hours counter.
- o Input for external flow switch.
- o Low pressure HO lamp.
- o UV Dose: 30 mJ/cm².
- o Lamp life: 13,000 hours (depending on number of lamp strikes).

2.1. SAFETY WARNINGS AND RECOMMENDATIONS: _____

Do not use this equipment for any purpose other than that for which it was designed.

Installation and manipulation should only be performed by properly-qualified technicians.

Applicable standards for prevention of accidents and for electrical installations must be respected.

The manufacturer accepts no responsibility for assembly, installation or setting up, nor for any manipulation or addition of components other than when carried out in the manufacturer's installations.

These UV LP/LP+ treatment systems operate with a supply of 230 Vac /50-60 Hz. Do not attempt to alter the power supply to operate at any other voltage.

Ensure that all electrical connectors are properly tightened, to avoid bad connections that could overheat.

The UV LP/LP+ treatment systems are not waterproof and must be installed under cover. They should never be installed in areas at risk of inundation.

Before installing or replacing any component in the system, ensure that it is disconnected from the power supply and no water is flowing through it. Only use genuine replacement parts.

Never remove the retention nut of the quartz tube when water is circulating inside the reactor, since it could be ejected, causing damage.



The UV radiation produced by this equipment can cause serious harm if eyes or skin are exposed directly to the lamp. Never connect the equipment when the lamp is outside the reactor.

Never handle the UV lamp until it is completely cold.

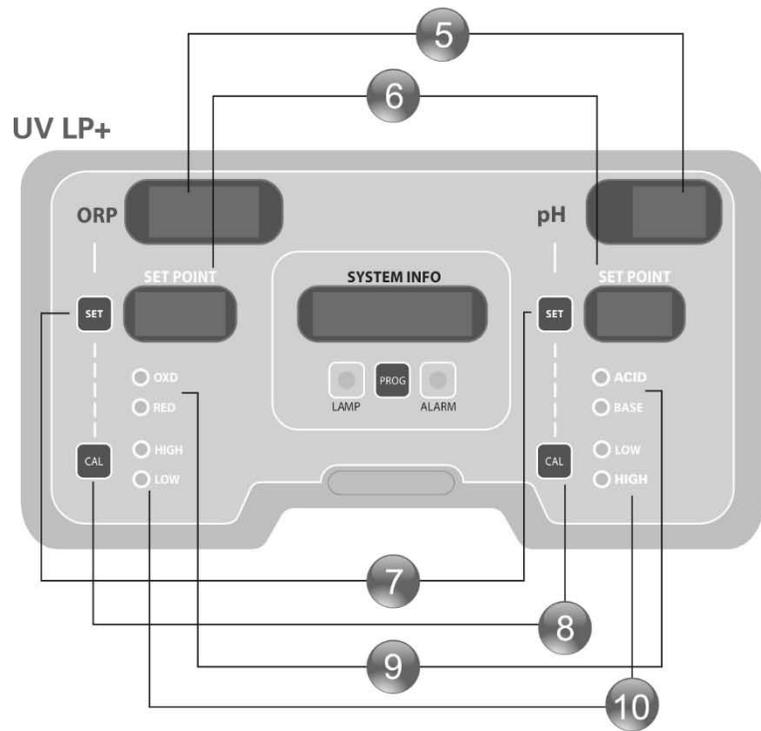
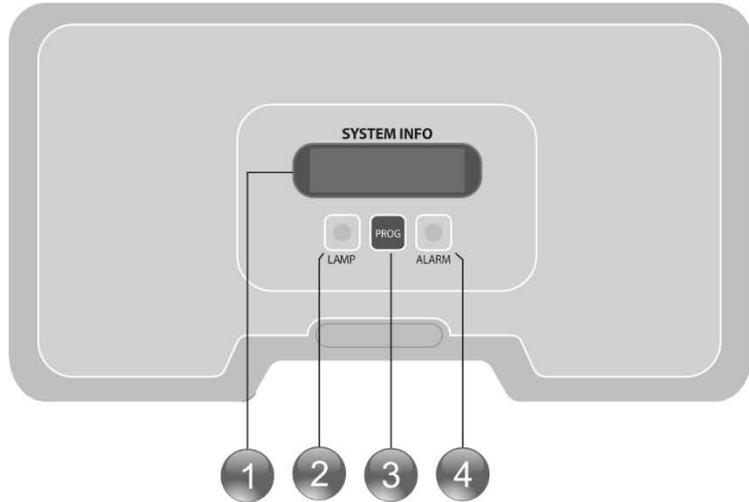
Always use gloves to handle the UV lamp, since grease or other substances deposited on it could reduce its performance and useful life. If the lamp has to be cleaned, use a soft cloth soaked with alcohol.

Keep this Instruction Manual for future reference.



3. DATASHEET: _____

UV LP

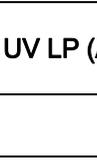


INFORMATION DISPLAYS:

<p>1) UV system data display</p> <p>2) Lamp alarm (NO RADIATION)</p> <p>3) INFO (PROG) key</p> <p>4) Alarms</p> <p>5) pH/ORP reading display.</p>	<p>6) pH/ORP set-point display.</p> <p>7) pH/ORP set-point programming keys</p> <p>8) Calibration mode keys. pH: Fast mode and Standard (pH4/pH7) mode. ORP: Standard (470mV) mode</p> <p>9) Indicator LEDs for type of product in use.</p> <p>10) pH/ORP out-of-range warning LED: High / Low.</p>
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MODELS:

UV LP (PE POLYTHENE)

	UV	UV + pH/ORP	W (Nominal - UVC)	FLOW RATE (30mJ/cm ²)
	PE10	PE10+	48W - 13W UVC	10 m ³ /h
	PE14	PE14+	56W - 18W UVC	14 m ³ /h
	PE20	PE20+	75W - 25W UVC	20 m ³ /h
	PE25	PE25+	90W - 30W UVC	25 m ³ /h

UV LP (AISI_316L SS)

	UV	UV + pH/ORP	W (Nominal - UVC)	FLOW RATE (30mJ/cm ²)
	INOX10	INOX10+	48W - 13W UVC	10 m ³ /h
	INOX14	INOX14+	56W - 18W UVC	14 m ³ /h
	INOX25	INOX25+	90W - 30W UVC	25 m ³ /h
	INOX30	INOX30+	2X75W - 2X25W UVC	30 m ³ /h

UV LP (PE POLYTHENE)

DESCRIPTION	MODEL			
	PE10 / PE14	PE20 / PE25	PE10+ / PE14+	PE20+ / PE25+
Flow rate m ³ /h (30mJ/cm ²)	10 / 14	20 / 25	10 / 14	20 / 25
pH / ORP control	NO	NO	YES	YES
Material	Polythene (PE)			
Characteristics	3 bar / 2-40°C / Inlet-Outlet: G2" F / 230Vac, 50-60Hz			
Power W (Nominal - UVC)	48-13 / 58-18	75-25 / 90-30	48-13 / 58-18	75-25 / 90-30
UV lamp Fuse (6x32mm)	T 0.6A	T 0.8A	T 1.6A	T 2.0A

UV LP (AISI_316L SS)

DESCRIPTION	MODEL			
	INOX10 / INOX14	INOX25 / INOX30	INOX10+ / INOX14+	INOX25+ / INOX30+
Flow rate m ³ /h (30mJ/cm ²)	10 / 14	25 / 30	10 / 14	25 / 30
pH / ORP control	NO	NO	YES	YES
Material	AISI - 316L (Stainless Steel)			
Characteristics	3 bar / 2-40°C / Inlet-Outlet: G2" M / 230Vac, 50-60Hz			
Power W (Nominal - UVC)	48-13 / 58-18	90-30 / 2X75-2X25	48-13 / 58-18	90-30 / 2X75-2X25
UV lamp Fuse (6x32mm)	T 0.6A	T 0.8A / T 1.6A	T 1.6A	T 2.0A / T 2.5A

UV LP

DESCRIPTION	PE / INOX	PE+ / INOX+
Flow sensor	OPTIONAL	YES
Hours / Strikes counter	YES	YES
"ON" indicator light	YES	YES

pH / ORP CONTROLLER (PE+ / INOX+)

DESCRIPTION	PE+ / INOX+ MODELS
Measurement range	0.0 - 9.9 (pH) / 0 - 999 mV (ORP)
Control range	7.0 - 7.8 (pH) / 600 - 850 mV (ORP)
Accuracy	± 0.1 pH / ± 1 mV (ORP)
Calibration	Automatic, using calibration solutions
pH/ORP control outputs	One 230V / 500mA max. output (connection for dosing pump)
pH and ORP sensors	12X150mm epoxy body, solid electrolyte. Range 0-12 pH, 0-1000 mV

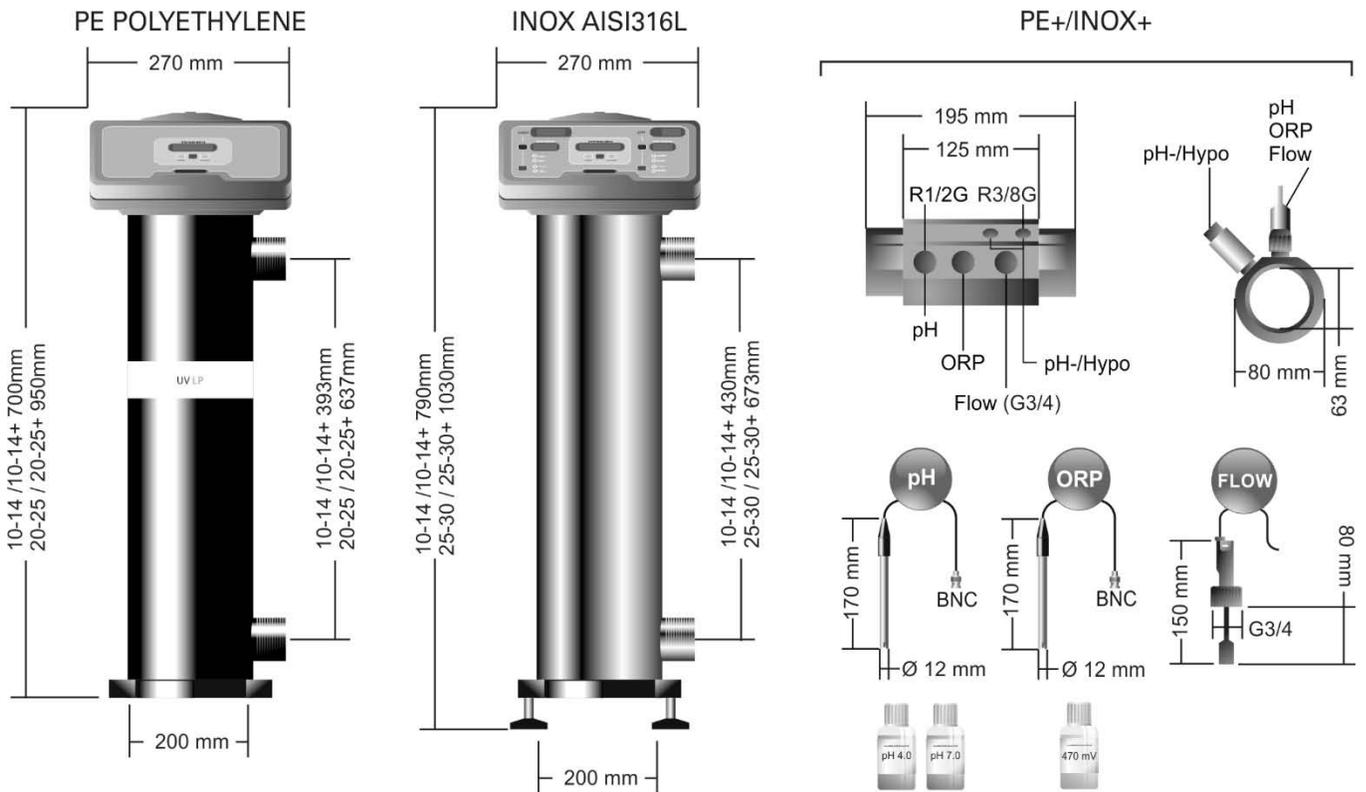
pH / ORP SENSOR (PE+ / INOX+)

DESCRIPTION	PE+ / INOX+ MODELS
pH sensor	pH sensor, H-035 epoxy body 12x150 mm, range 0-14 pH, 0-80°C, single union sealed Ag/AgCl electrode, 3m cable., BNC connector, gel electrolyte, fixed probe protector. Calibration solutions (pH 7.0 and 4.0)
ORP sensor	RX1/RX2 ORP sensor, epoxy body 12x150 mm, 0-80°C, single sealed union Ag/AgCl, 3m cable., BNC connector, gel electrolyte, fixed probe protector. Calibration solution (ORP 470mV)

PROBE HOLDER (PE+ / INOX+):

PVC ø63, pH, ORP, 2 insertion points, flow switch. (Included in UV LP PE+/INOX+)

DIMENSIONS:



INSTALLATION DIAGRAM

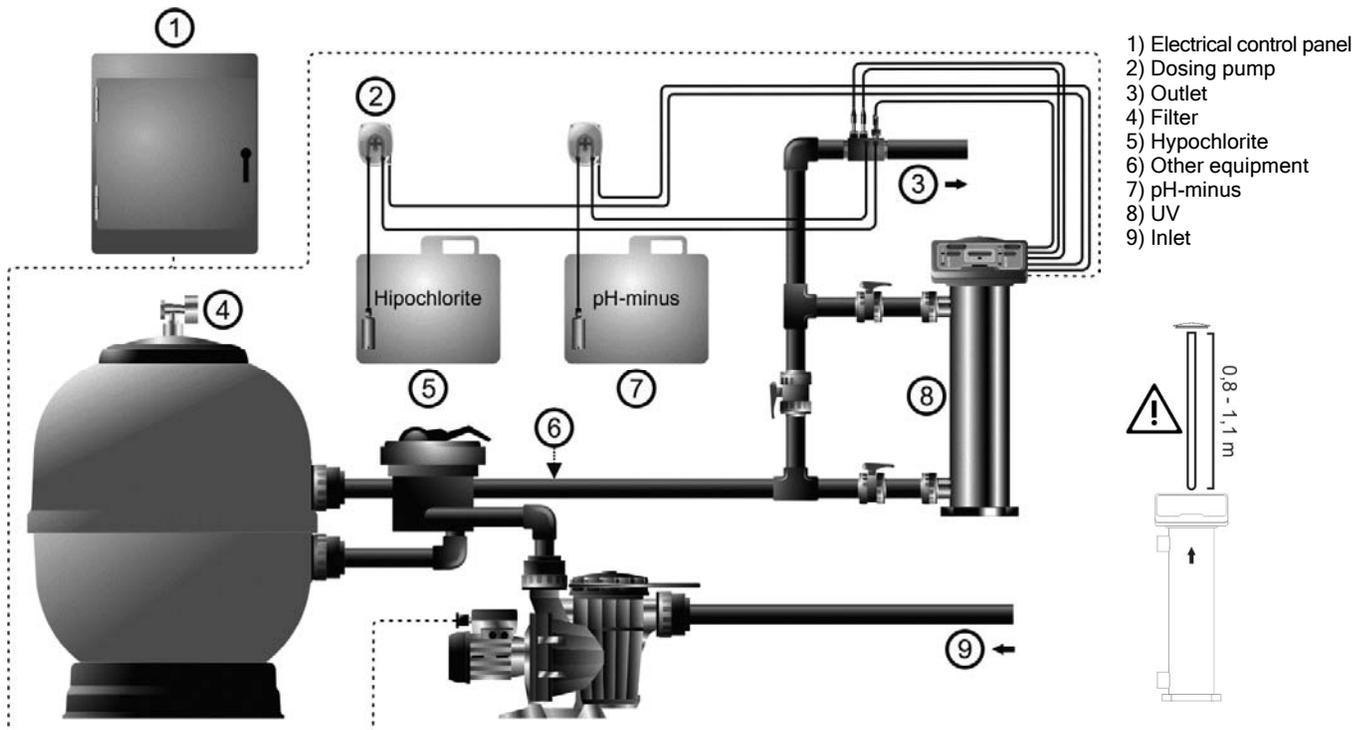


Fig. 1

4. INSTALLATION:

4.1. UV Reactor Vessel

The UV LP/LP+ system should always be installed VERTICALLY on the floor, as shown in the recommended installation diagram (Fig. 1). To guarantee that the equipment remains in good condition, it should always be installed in a dry, well-ventilated location in the pump house. The UV LP/LP+ treatment systems are not waterproof and must be installed under cover.

It is important to avoid the formation of corrosive atmospheres due to pH reducers (specifically, those based on hydrochloric acid, "HCl"). Do not install the UV LP/LP+ system close to an area where these products are stored. We strongly recommend that products based on sodium bisulphate or dilute sulphuric acid be used to reduce pH.

The reactor vessel in the UV LP/LP+ systems is made of AISI 316 L Stainless Steel or Polyethylene. The UV lamp is housed inside it. The UV LP/LP+ system **must always be installed downstream of the filter system and before any other devices in the installation**, such as heat pumps, control systems, dosers, salt chlorinators, etc.

The installation should allow easy access to the UV lamp. The location chosen for the installation of the UV LP/LP+ system should have sufficient height for the UV lamp to be completely extracted from its housing (approximately twice the total height of the unit).

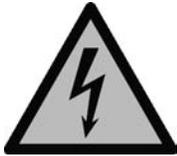
The UV LP/LP+ system should be installed at a point in the pipes that can be isolated from the rest of the installation by two valves, allowing maintenance work on it without having to partially or completely drain the pool. If the system is installed in a by-pass configuration (recommended), a flow-control valve should be included to regulate the flow through it.

The water should always enter the unit at the bottom, to guarantee that the reactor vessel is always full with the lamp totally submerged.

4.2. Electrical installation

The UV LP/LP+ system should be connected to the electrical supply in the control panel of the filter system **in such a way that the filter pump and the UV LP/LP+ system are connected simultaneously**.

Remember



Installation and manipulation should only be performed by properly-qualified technicians.

Applicable standards for prevention of accidents and for electrical installations must be respected.

Do not attempt to alter the power supply to operate at a voltage other than that shown on the label on the side of the unit.

4.3. Installation of the pH/ORP sensors (only in UV LP+ versions)

1. Insert the pH and ORP sensors supplied with the equipment in the corresponding sockets of the probe housing. (Fig. 2a)
2. To do this, loosen the nuts on the probe sockets and insert the sensors in them.
3. The sensor tubes should be inserted far enough to guarantee that the sensor electrode in its tip will always be submerged in the water flowing through the pipe.
4. **Always install the pH/ORP sensors vertically, or with a maximum inclination of 40° (Fig. 3a).**

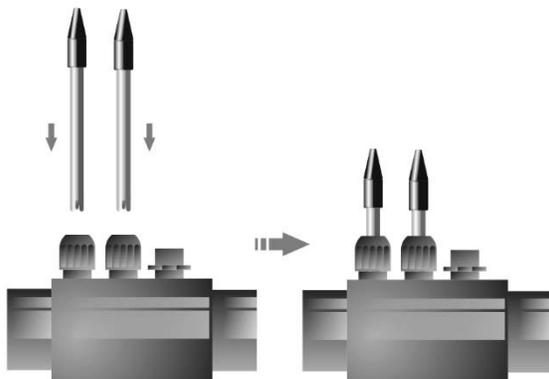


Fig. 2a

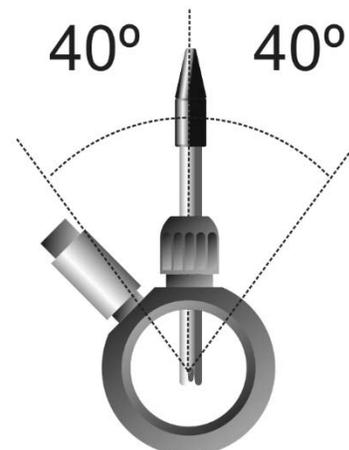


Fig. 3a

4.4. Installing the external flow switch

1. Glue the supplied probe housing (PVC, 63mm dia.) into a section of piping after the UV by-pass (fig. 1). The probe housing must always be installed horizontally (see fig. 2b) and with the threaded inlets (1/2"G - 3/8"G) accessible for later installation of the pH-minus and Hypochlorite injectors (see fig. 3b).
2. Install the supplied flow switch vertically in the probe housing (Fig. 2b).
3. The flow switch has an arrow mark on the top. Make sure that the arrow points in the direction of water flow (Figs 2b and 3b).
4. Avoid installing the flow switch near to ferromagnetic articles. Such articles could interfere with the operation of the magnetic device inside the flow switch, making it unreliable.

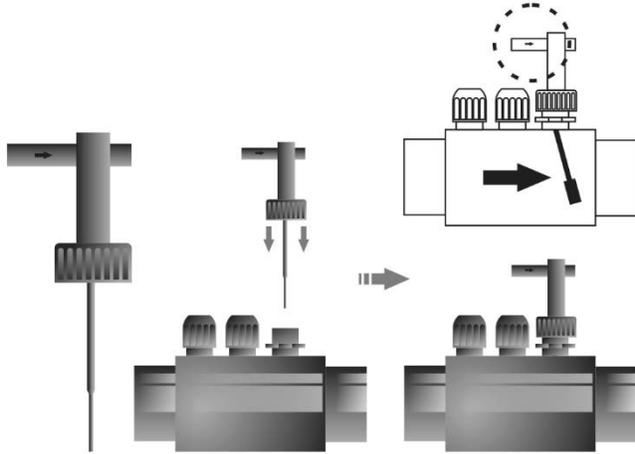


Fig. 2b

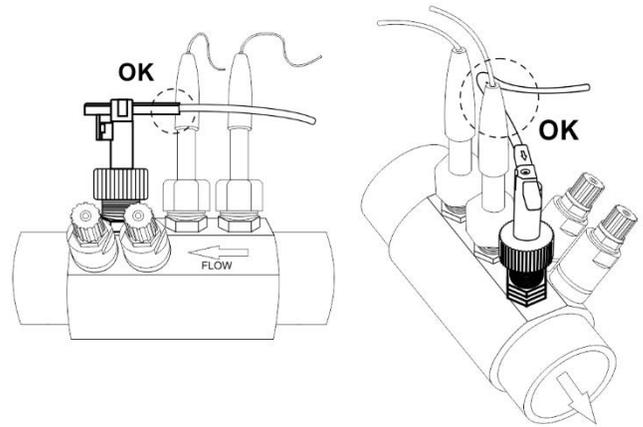


Fig. 3b

4.5 Control inputs

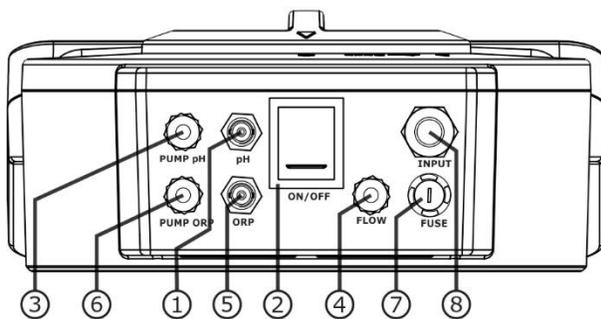
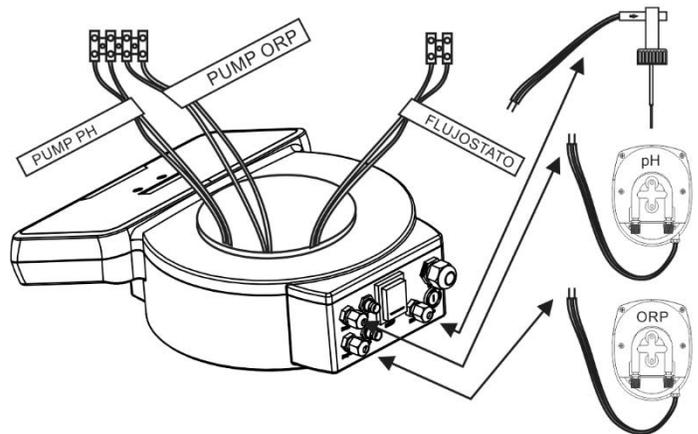
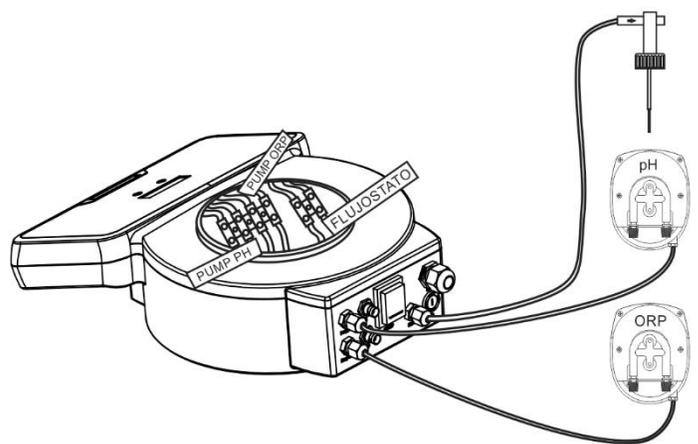


Fig. 4. UV LP/LP+ system control panel. Rear view.



- 1) BNC connector for pH probe ⁽¹⁾
- 2) Main ON/OFF switch
- 3) Cable gland for pH control output ⁽¹⁾
- 4) Cable gland for flow switch input ⁽¹⁾
- 5) BNC connector for ORP probe ⁽¹⁾
- 6) Cable gland for ORP control output ⁽¹⁾
- 7) Fuse holder.
- 8) 220V AC power supply.

⁽¹⁾ only in UV LP PE+/INOX+ models



Flow switch. FLOW SENSOR:

Apart from its basic operations, the UV LP/LP+ treatment system has an input that can be connected to a flow switch (flow sensor). This input (for a voltage-free contact) is connected via the FLOW terminals on the main circuit board, located at the top of the unit (Fig. 5):

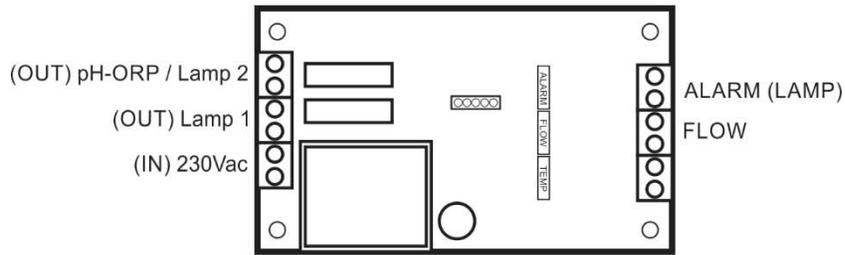


Fig. 5

When the contact connected to this input is open (flow detector at rest, i.e., no water flow), the system disconnects the lamp, and in the case of the UV LP+ models with integrated pH/ORP control, it also deactivates the integrated pH/ORP controllers, halting pH-minus and hypochlorite dosing.

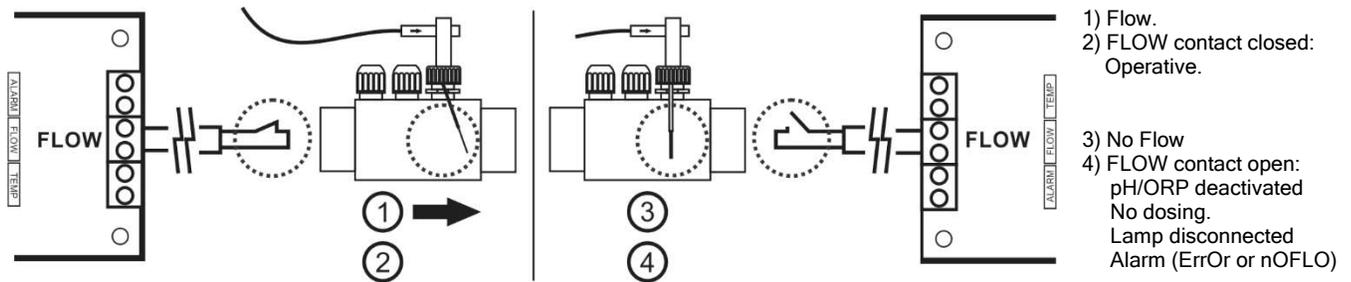


Fig. 6

4.6 Initial start-up

1. Make sure that the filter is 100% clean and that there is no copper, iron or algae in the pool.
2. An analysis of the water is most important, to guarantee that the UV LP/LP+ system can perform with maximum efficiency. Before using the system for the first time, check that the following parameters are within the recommended limits:

- Iron: less than 0.3 mg./l.
- Hardness: less than 120 mg./l.
- Turbidity: less than 1 NTU.
- Manganese: less than 0.05 mg./l.
- TSS: less than 10 mg./l.
- UV Transmittance: greater than 75%.

If the levels of any of these parameters are outside the recommended limits, we recommend a suitable preliminary treatment be applied to correct them.

3. Balance the pool water. This will allow us to achieve a more efficient treatment with a lower concentration of free chlorine in the water, and to extend the operating life of the lamp with less lime scale deposited on the quartz housing in the system.

- a) The pH should be 7.2-7.6
- b) Total alkalinity should be 60-120 ppm.

4. Check that all of the water pipe connections are correct and free of leaks.
5. Turn the system on with the ON/OFF switch [2] located on the back panel of the unit.

Remember



Always connect the unit to a circuit protected by an RCD.



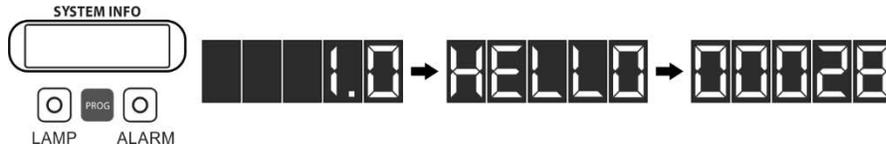
Never look directly at the UV lamp when it is turned on.

6. Allow the water to circulate during several minutes, to eliminate air and any dirt that may remain inside the UV reactor.

5. OPERATION:

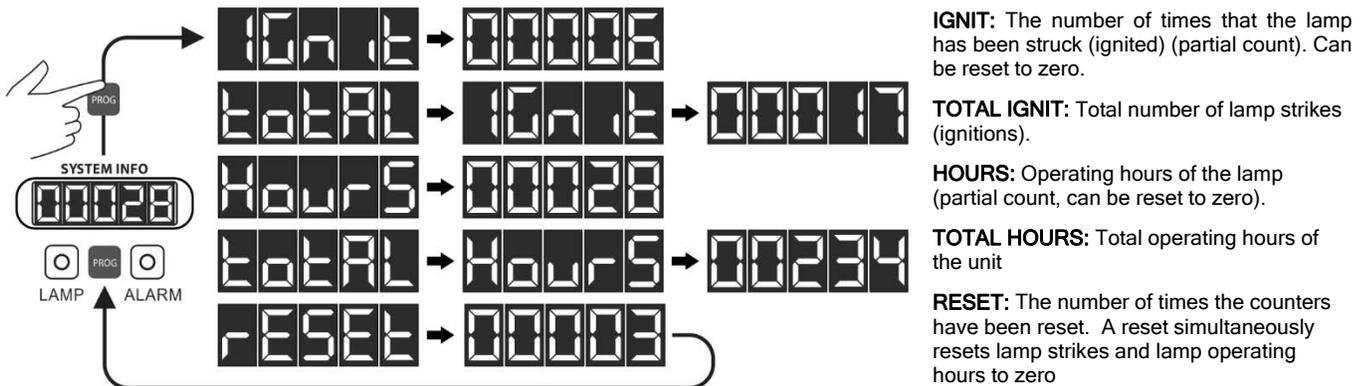
5.1. The UV System

The UV system turns the lamp on automatically when the unit is turned on via the main ON/OFF switch on the rear control panel of the unit (see item 2, FIG.4). When the unit is turned on, the screen will display several items in sequence (software version→hello→ partial operating hours):



After a few seconds, when the system detects that the lamp has struck, the **"LAMP"** LED on the unit's control panel will light. The main display screen **[SYSTEM INFO]** will normally display the accumulated operating hours of the lamp (partial counter).

When the **"PROG"** key is pressed, the main display screen **[SYSTEM INFO]** will show a sequence of items (lamp strikes [ignitions]->total strikes->hours->total hours->reset) before once again displaying the operating hours (partial hour counter):



5.1.1. Alarms

When the system detects a problem in the UV lamp circuit, the alarm LED **[4]** on the unit's control panel will light.

- LAMP**

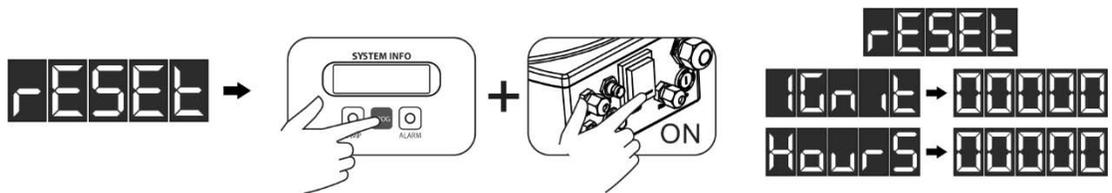
If the lamp does not strike within the pre-set time, the main display screen **[SYSTEM INFO]** will display the message **"ERROR LAMP1"** or **"ERROR LAMP2"**:



Remember



Whenever a lamp is replaced, the counters must be reset to zero. To do this, hold down the **"PROG"** key while turning the unit on with the main ON/OFF switch, and continue to hold this key down until the message **"RESET"** appears on the main display screen. After a **"RESET"**, the values shown for **"IGNIT"** and **"HOURS"** will be zero.



- FLOW SENSOR (FLOW SWITCH)**

If a flow sensor has been connected while configuring the system, (a flow switch is supplied as standard equipment with the UV LP PE+/INOX+ models), the system will automatically disconnect the lamp and deactivate the integrated pH/ORP regulators (PE+/INOX+ models). The **[SYSTEM INFO]** screen will display the alarm message **"noFLO"** or **"ERROR"** :



The system will reactivate automatically when the flow switch indicates that water flow has been restored. (Note: if no flow switch is installed, the FLOW contact is closed by default)

5.2. Integrated pH/ORP controller (only in UV LP+ models)

The integrated pH/ORP controller is calibrated during manufacture and programmed with the following parameter values.

pH SET-POINT = "7.2"

ORP SET-POINT = "750 mV"

PLEASE NOTE: To achieve proper pH regulation, ensure that the alkalinity of the water is within the optimum range recommended, 80-150 ppm CaCO₃. Use a test kit to measure the Total Alkalinity of the water, and correct it manually if necessary.

5.2.1. CONNECTING THE pH/ORP SENSORS

Connect the pH and ORP sensors supplied with the unit to the corresponding BNC connectors located on the rear panel of the unit (Fig 4).

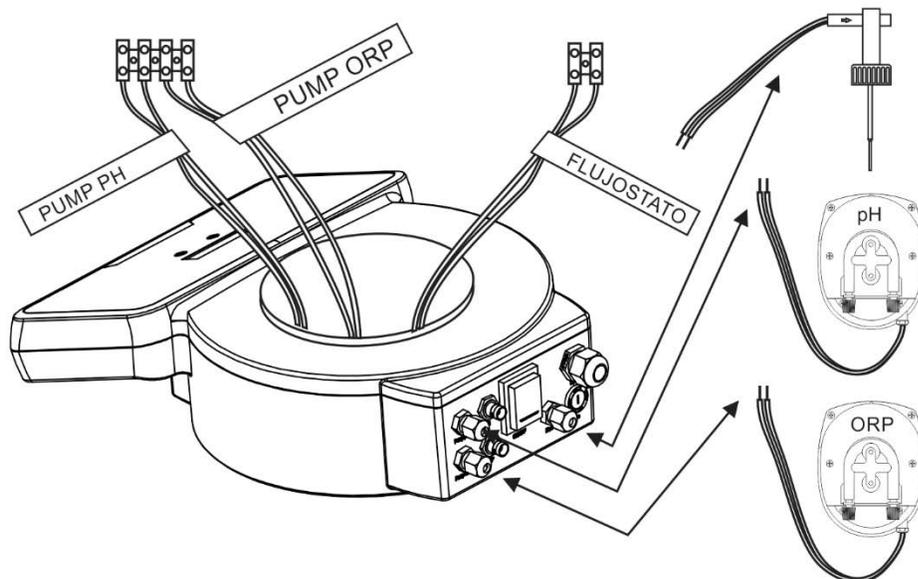
5.2.2. CONNECTING THE EXTERNAL TREATMENT/DOSER SYSTEMS

The pH/ORP control boards inside the control panel of the UV LP PE+/INOX+ treatment systems have terminals to connect dosing pumps for pH/ORP control (230Vac, 500mA). The dosing pumps for pH/ORP regulation can be connected by cables passing through the corresponding cable glands located on the unit's rear control panel (fig 4). If the dosing pump or other device connected to the output of the control board requires more than 500mA, it should be operated indirectly via a relay or a contactor with a 230 Vac coil, switched by the voltage-free contact on the control board (Fig. 7).

Electrical schematic. Component references.

F1	MAIN FUSE
F2	FUSE, DIRECT CONTROL OUTPUT (pH) ⁽¹⁾
F3	FUSE, DIRECT CONTROL OUTPUT (ORP) ⁽¹⁾
S1	MAIN ON/OFF SWITCH
E1	UV LAMP
G1	ELECTRONIC BALLAST
P1	MAIN CONTROL BOARD
P2	pH CONTROL BOARD ⁽¹⁾
P3	ORP CONTROL BOARD ⁽¹⁾
KA1	AUXILIARY RELAY/CONTACTOR FOR INDIRECT CONNECTION OF THE pH DOSER ⁽¹⁾
KA2	AUXILIARY RELAY/CONTACTOR FOR INDIRECT CONNECTION OF THE DOSING PUMP FOR CHLORINE, SALT CHLORINATOR, ETC. ⁽¹⁾
M1	pH DOSING PUMP ⁽¹⁾
M2	DOSING PUMP FOR CHLORINE, SALT CHLORINATOR, ETC. ⁽¹⁾

⁽¹⁾ Only in UV LP PE+/INOX+ (1 LAMP) models



Electrical schematic (UV LP PE+ / INOX+ : 1-lamp models)

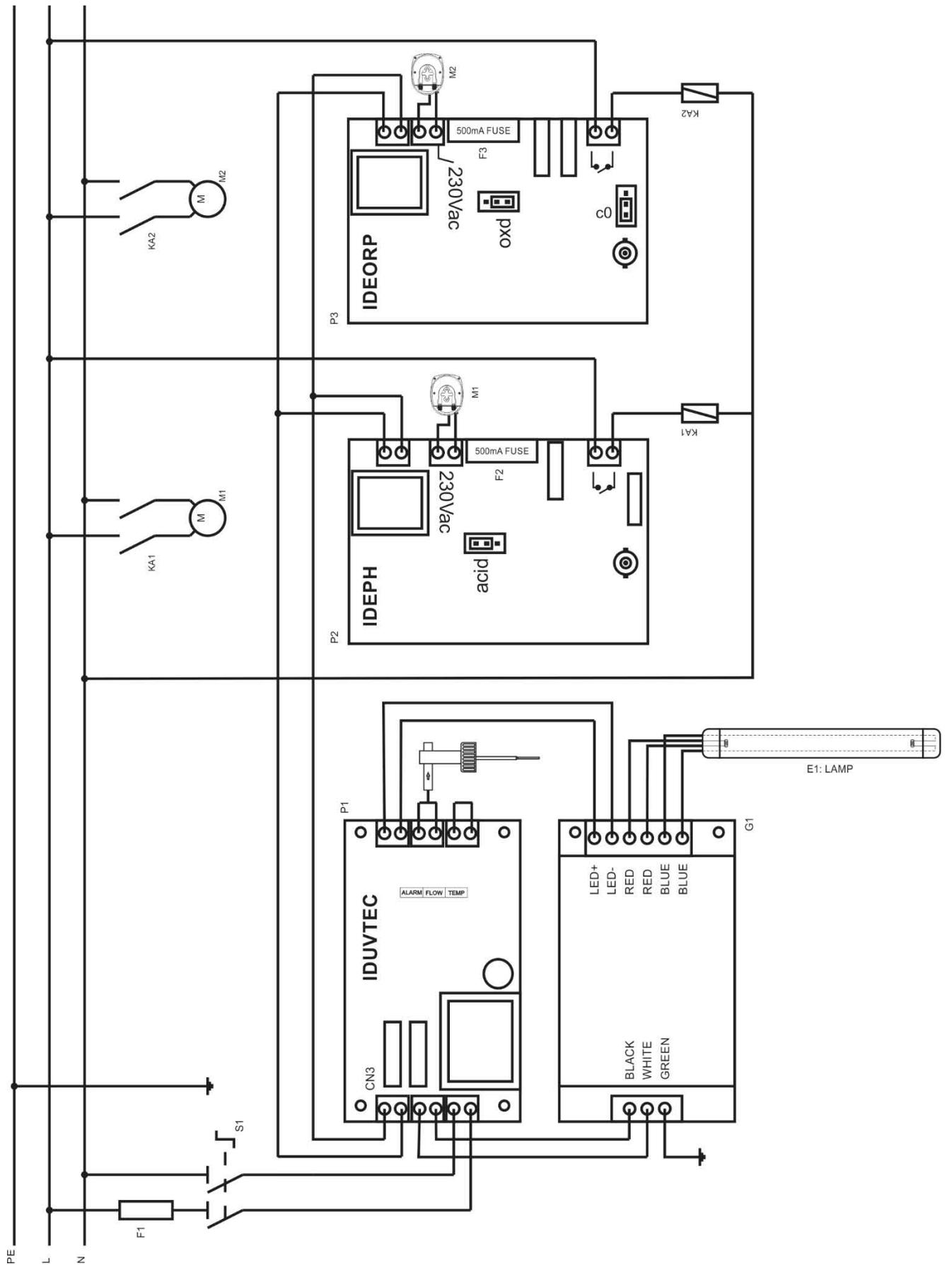


Fig.7

5.2.3. PROGRAMMING THE DESIRED pH SET-POINT

Hold down the "SET" key [7] until the set-point display [6] (red) shows the desired pH value. The system only accepts pH values in the range 7.0 - 7.8 (Fig. 8).

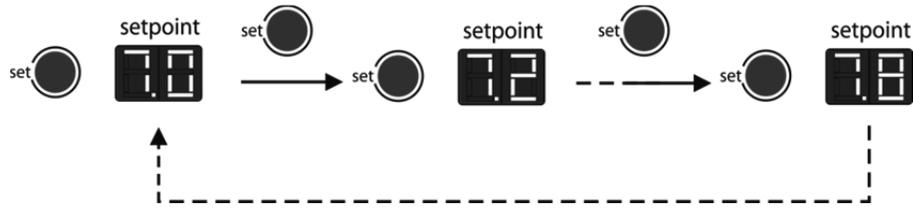


Fig. 8

5.2.4. pH CONTROL / SELECTION OF PRODUCT USED (ACID OR BASE)

The UV LP+ treatment systems with INTEGRATED pH CONTROL are configured during manufacture so that they can be used in the majority of pools without requiring reconfiguration of their internal parameters. The systems are preconfigured to use an ACID (pH-minus or pH reducer). If the product used must be modified (acid or base), the configuration must be modified in the unit's pH control board. To do this, move the jumper labelled "J1" to the "ACID" position (to use a pH reducer) or to the "BASE" position (to use a pH increaser), depending on the product used. (Fig. 9). The indicator on the control panel [9] will show which type of product is selected.

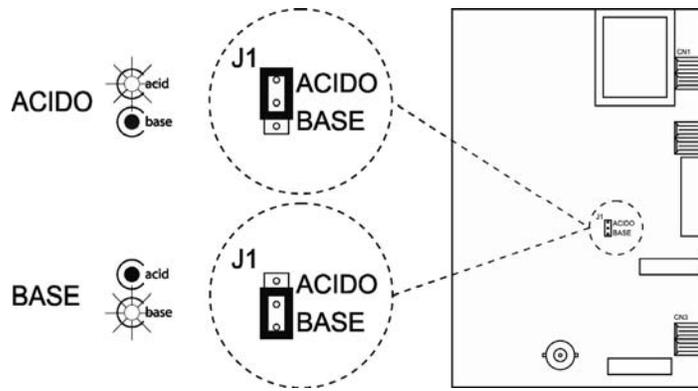
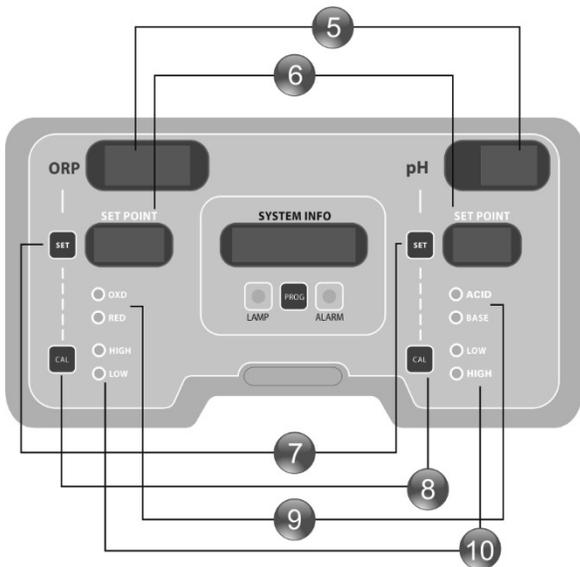


Fig. 9



INFORMATION DISPLAYS:

- 5) pH/ORP reading display.
- 6) pH/ORP set-point display.
- 7) pH/ORP set-point programming keys
- 8) Calibration mode keys. pH: Fast mode and Standard (pH4/pH7) mode.
ORP: Standard (470mV) mode
- 9) Indicator LEDs for type of product in use.
- 10) pH/ORP out-of-range warning LED: High / Low.

5.2.5. PROGRAMMING THE DESIRED ORP SET-POINT

Before programming the desired ORP set-point in the system, check the following points:

1. Before connecting the UV treatment system, check that the values of pH, alkalinity, stabilizer (cyanuric acid) and free chlorine are within the recommended ranges:

pH: 7.2-7.6.

Cyanuric acid: 0 -30 ppm.

Alkalinity: 80-150 ppm CaCO₃.

Free chlorine: 0.5 -1.5 ppm.

2. If any chemical products must be added to the pool water to adjust any of these parameters, disconnect the UV treatment system and leave the water circulation pump operating during at least 24 hours, to guarantee that the products have been completely dissolved.
3. The UV LP+ treatment system used an ORP (mV) electrode to measure the oxidative potential of the water, i.e., its ability to destroy organic material and pathogens. It must be understood that **AN ORP SENSOR DOES NOT MEASURE THE CONCENTRATION OF RESIDUAL CHLORINE IN THE WATER, IT MEASURES ITS ABILITY TO TREAT THE WATER.** Briefly, greater ORP values (mV) indicate better disinfection treatment.
4. Once this is clear, it is easy to understand that two swimming pools with identical concentrations of residual chlorine may present very different ORP (mV) readings. This is because the oxidative power of chlorine is affected by other factors, such as the pH and the concentration of stabilizer (cyanuric acid), especially, and also by the temperature and the TDS (Total Dissolved Solids).
5. For example, in a pool with no stabilizer (cyanuric acid), we would need half the residual chlorine compared to another pool with 30 ppm of stabilizer in order to achieve the same value of ORP (mV). This is a result of the stabilization of the chlorine caused by the presence of cyanuric acid, which is added to prevent the rapid decomposition of the chlorine caused by UV radiation in sunlight.
6. The table below shows the effect on ORP values of variations in other parameters implicated in water treatment.

PARAMETER		
Free chlorine	+ mV	- mV
Combined chlorine	- mV	+ mV
pH	- mV	+ mV
Stabilizer (cyanuric acid)	- mV	+ mV
TDS (Total Dissolved Solids)	- mV	+ mV
Temperature	+ mV	- mV

7. If more stabilizer (cyanuric acid) must be added, remember that if it is used in concentrations above 30-40 ppm, it caused a significant drop in the ORP (mV) values for a given concentration of free chlorine.
8. The ideal set-point for ORP should be determined individually for each installation. However, in general, values between 700-800 mV will be suitable for pH values between 7.2 and 7.8 and stabilizer concentrations (cyanuric acid) below 30 ppm. Consult the table above when adjusting the set-point of the controller, taking into account the values of the other parameters. If the pH or the stabilizer concentration rises, lower values should be used for the set-point in order to maintain the same level of free chlorine.

PROCEDURE:

- MANUAL ADJUSTMENT**

To adjust the set-point MANUALLY, hold down the "SET" key [7] until you hear a "beep", then release it. The first digit in the red set-point display [6] will light. Hold down the "SET" key [7] to set the hundreds digit. Release the key when the value is correct. Repeat this operation for the tens and units digits. (Fig. 10)

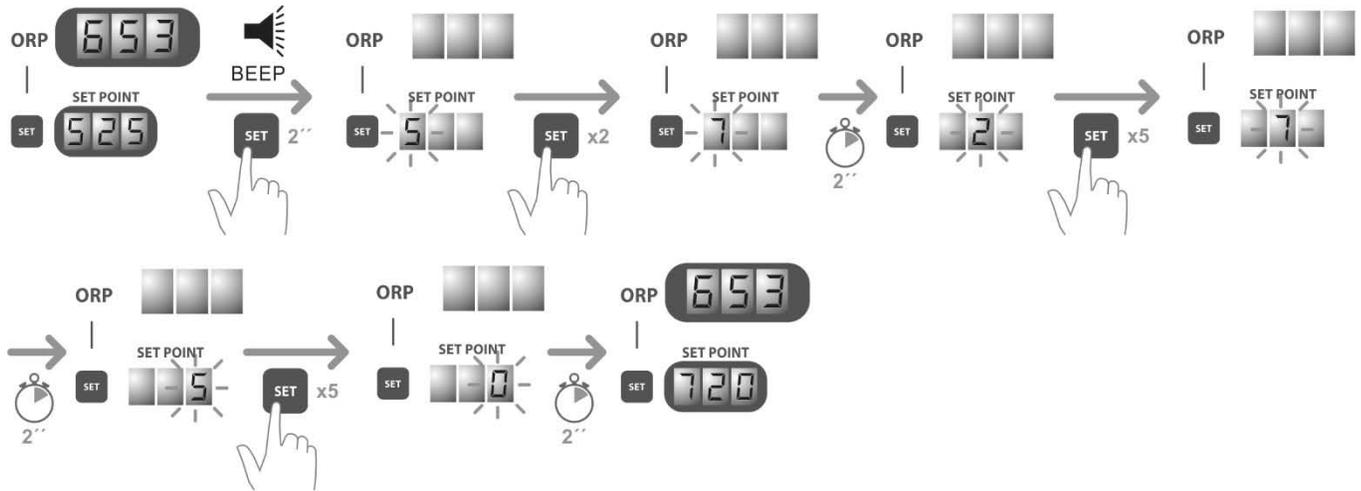


Fig. 10

- AUTOMATIC ADJUSTMENT**

AUTOMATIC ADJUSTMENT allows the existing ORP (mV) value in the water to be quickly established as the set-point. To do this, hold down the "SET" key [7] (the display screens [5, 6] will go out). After a few seconds, you will hear a "beep" (as in MANUAL adjustment. DO NOT RELEASE THE KEY). Continue to hold the "SET" key [7] down until you hear a second and third "beep". Now you can release the "SET" key [7], and the set-point will automatically be set to the existing ORP (mV) value in the water. (Fig. 11).

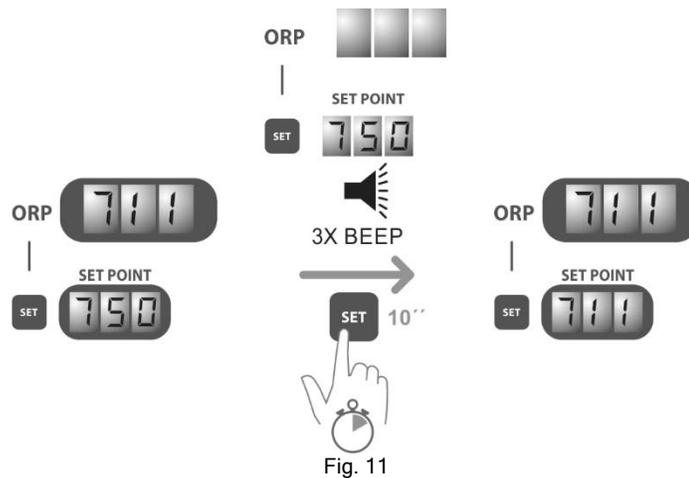


Fig. 11

5.2.6. ORP CONTROL / SELECTION OF PRODUCT USED (OXIDISER OR REDUCER)

The UV LP+ treatment systems with INTEGRATED ORP CONTROL are configured during manufacture so that they can be used in the majority of pools without requiring reconfiguration of their internal parameters. The systems are supplied preconfigured to use an OXIDISER (salt chlorination, sodium hypochlorite, etc.). If the product used must be modified (oxidiser or reducer), the configuration must be modified on the unit's ORP control board. To do this, move the jumper labelled "J1" to the "OXD" position (to increase the ORP value) or to the "RED" position (to decrease the ORP value), depending on the product used. (Fig. 12). The indicator on the control panel [9] will show which type of product is selected.

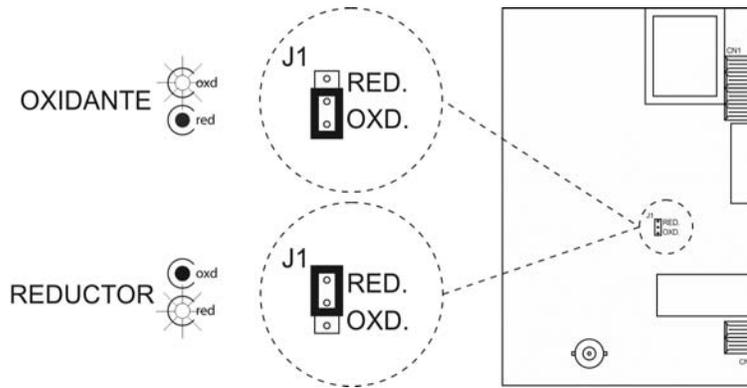


Fig. 12

• **pH / ORP READING OUT OF RANGE**

The integrated pH/ORP controller has two ALARM LEDs that light whenever an anomalous pH reading is received, below 6.5 "LOW" or above 8.5 "HIGH" [10], or if the ORP reading is outside the range 650 mV "LOW" - 850 mV "HIGH" [10]. When the controller detects an active alarm, it opens the contacts of the control outputs on the pH and ORP control boards (230Vac off and voltage-free contacts open).

Remember



Whenever the pH of the water is outside the control range of **6.5 - 8.5**, the dosing pump connected to the system will remain inactive, and the system will be unable to modify the water chemistry. To avoid this situation, the pH should be corrected manually using a suitable product (pH-minus/pH-plus), depending on the deviation of this parameter. In the same way, if the ORP reading goes above **850 mV**, the treatment system (dosing pump, salt chlorinator, etc.) connected to the system will remain inactive.

6. MAINTENANCE : _____



Before installing or replacing any component in the system, ensure that it is disconnected from the power supply.



WARNING: CHECK THAT THERE IS NO WATER PRESSURE. Otherwise the quartz tube could be ejected from its housing!

Only use replacement parts supplied by the manufacturer.

6.1. Replacing the UV lamp and the quartz housing (UV LP AISI 316 L / UV LP PE)

Remember

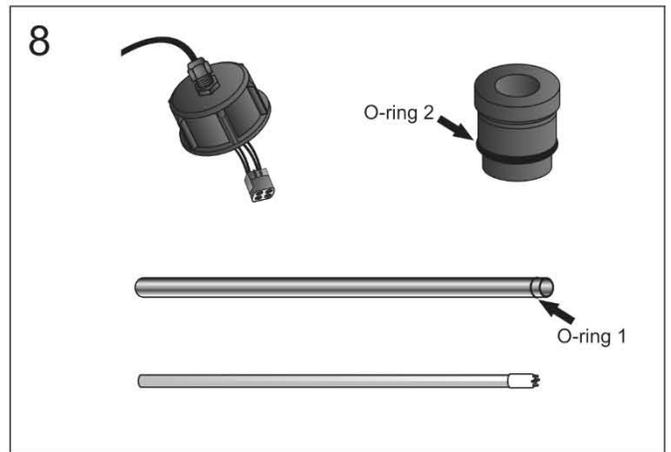
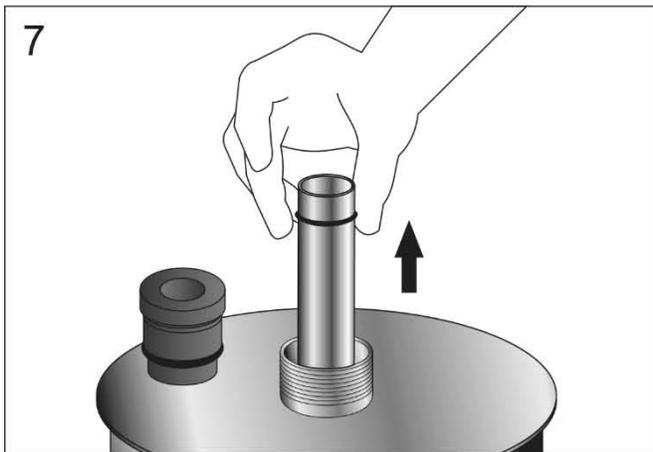
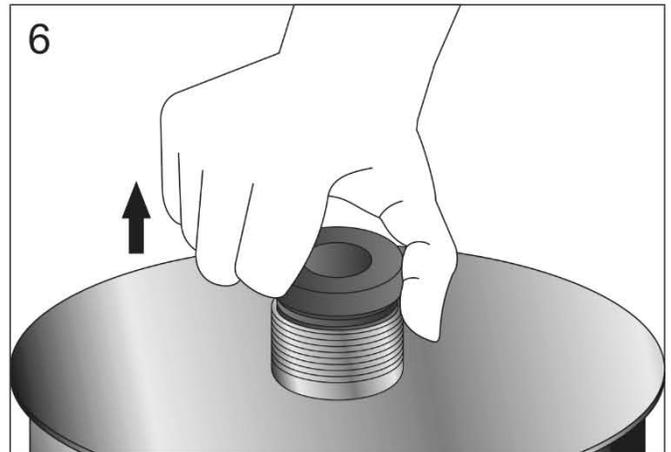
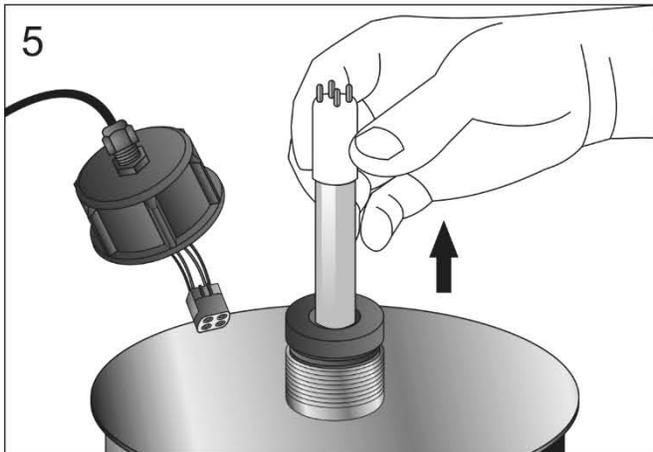
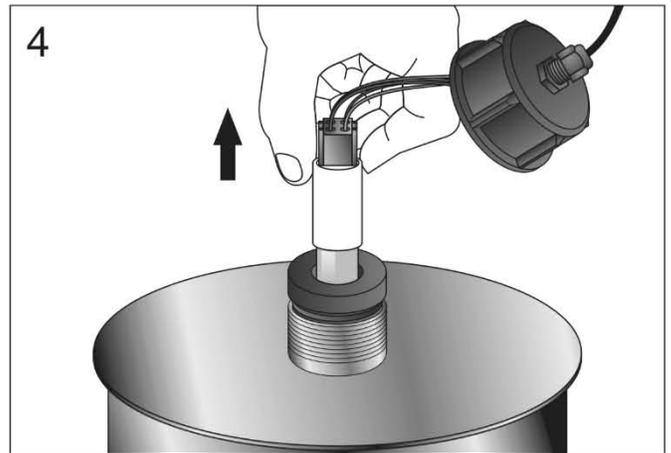
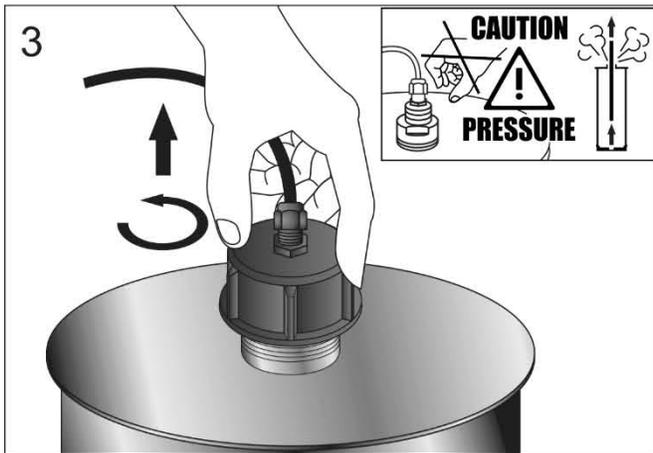
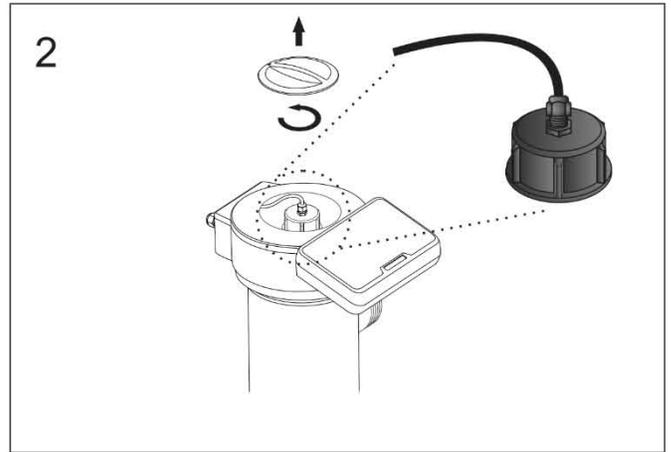
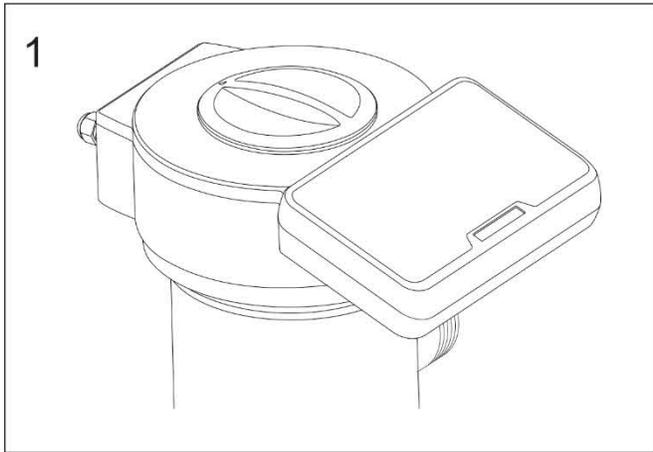


Always use gloves to handle the UV lamp, since grease or other substances deposited on it could reduce its performance and useful life. If the lamp has to be cleaned, use a soft cloth soaked with alcohol.

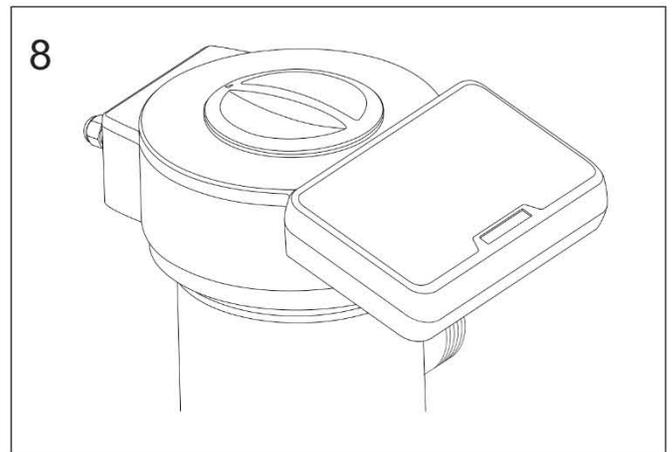
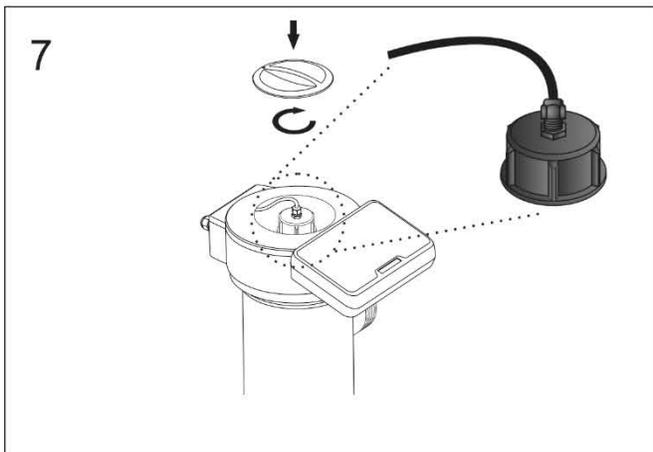
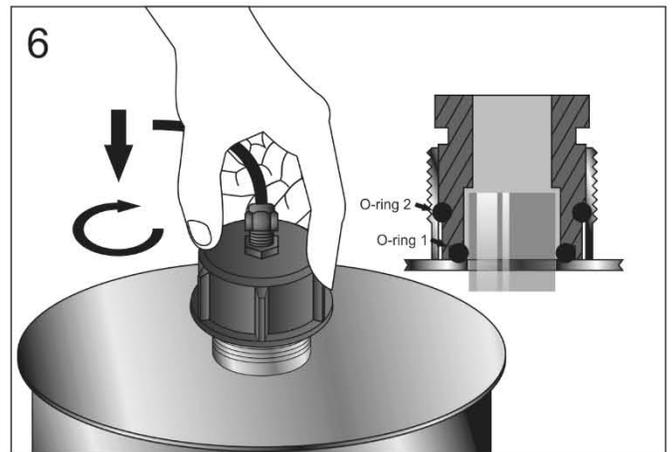
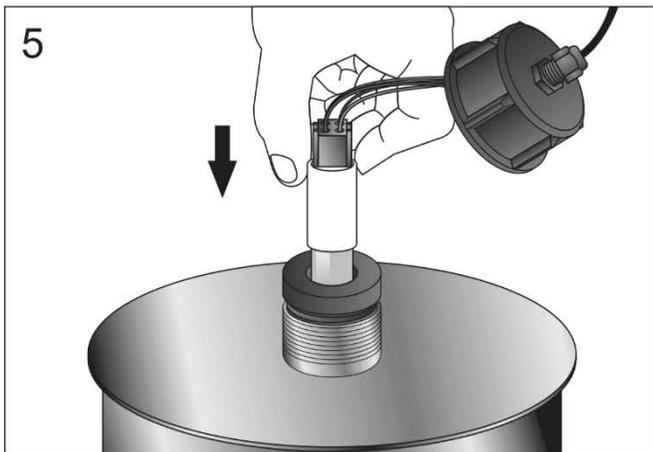
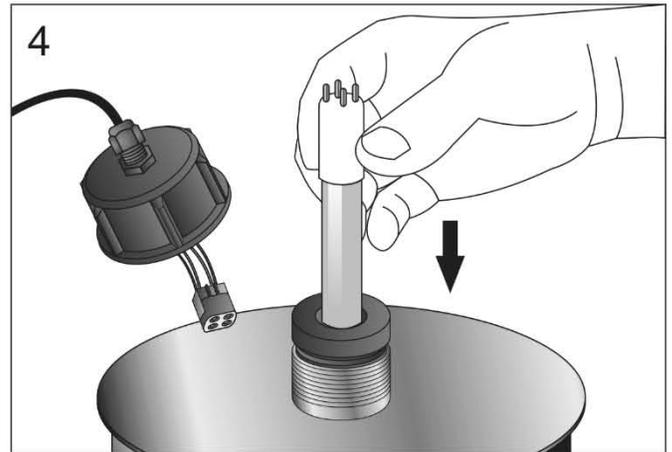
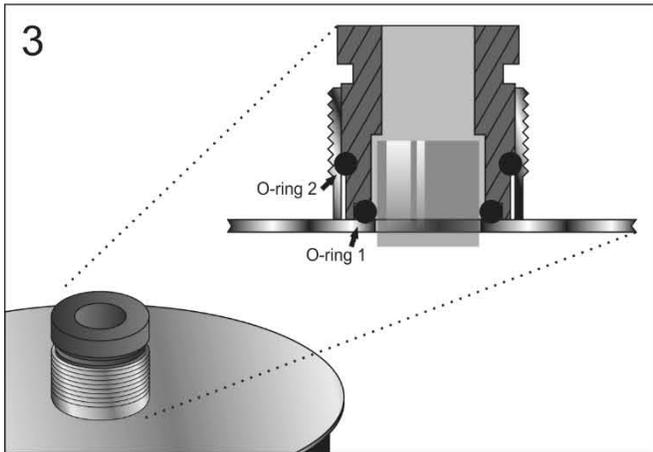
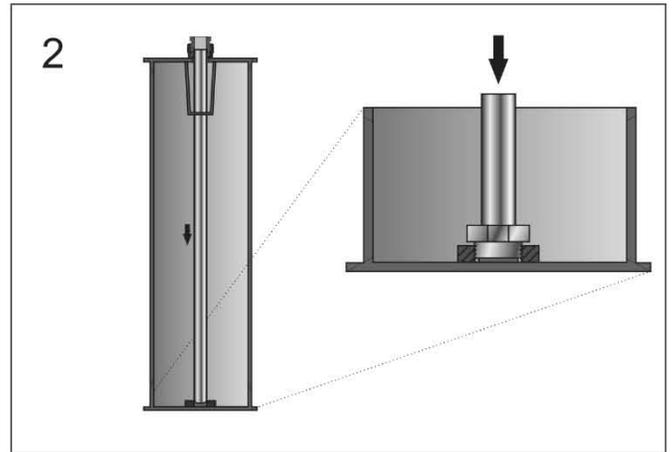
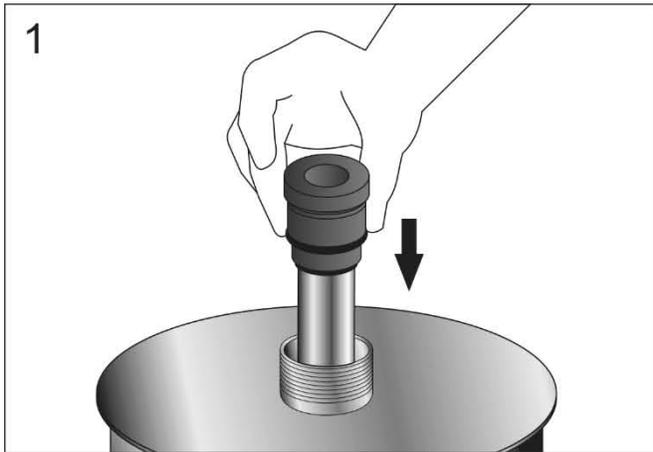
6.1.1. Cleaning the quartz housing

At least once per year, the quartz lamp housing must be inspected to ensure that it is free of surface deposits (lime scale, iron, manganese, organic material, etc.). Disconnect the system to do this, then remove the lamp as described in section 6.1.

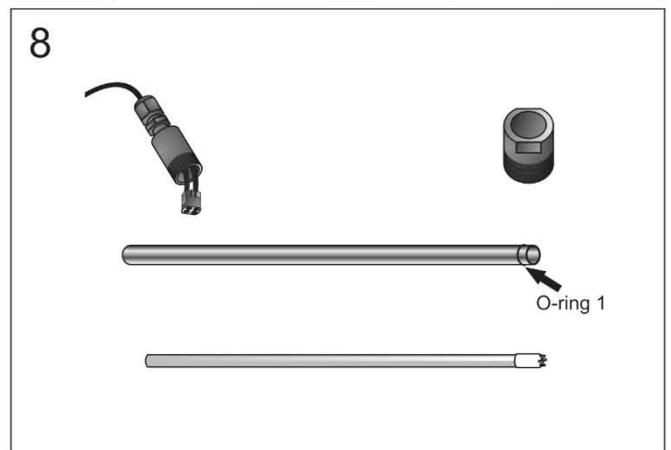
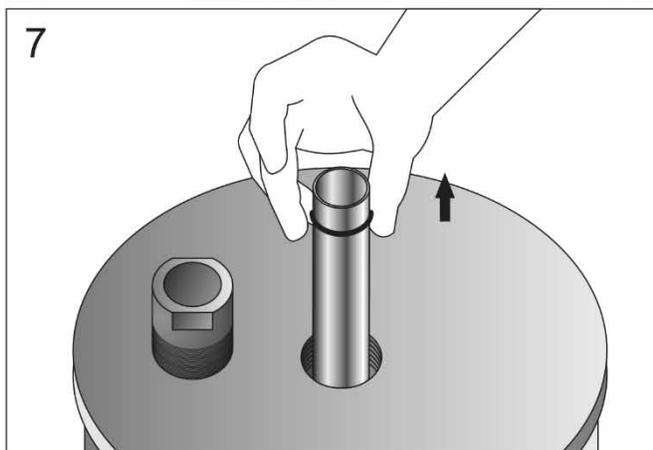
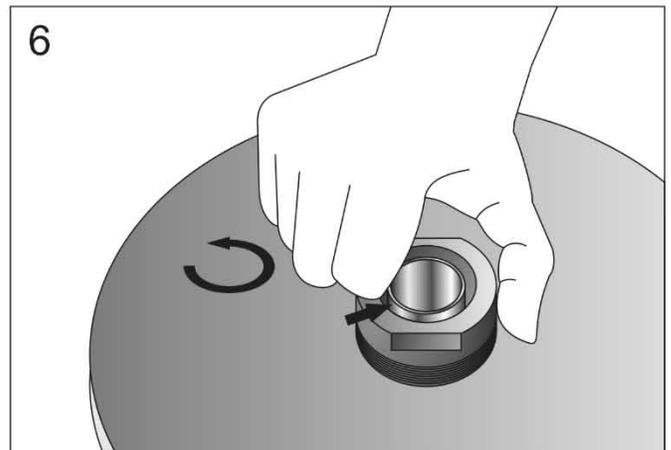
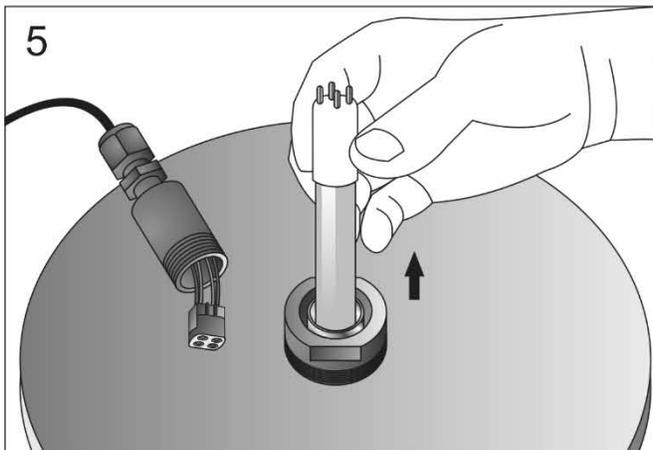
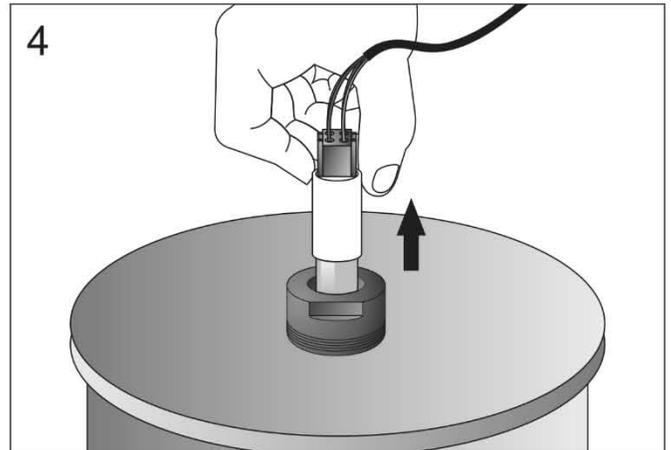
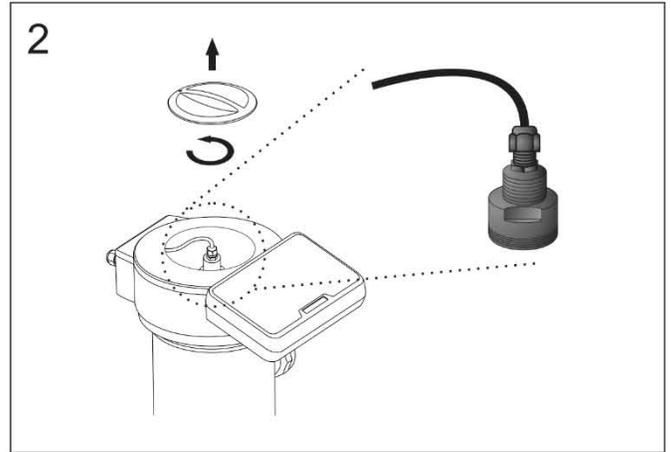
UV MAINTENANCE: LAMP/QUARTZ TUBE (UV LP INOX AISI 316 L Stainless Steel)



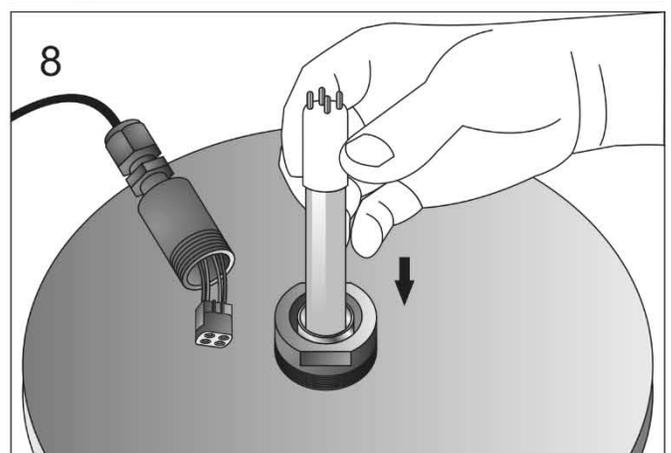
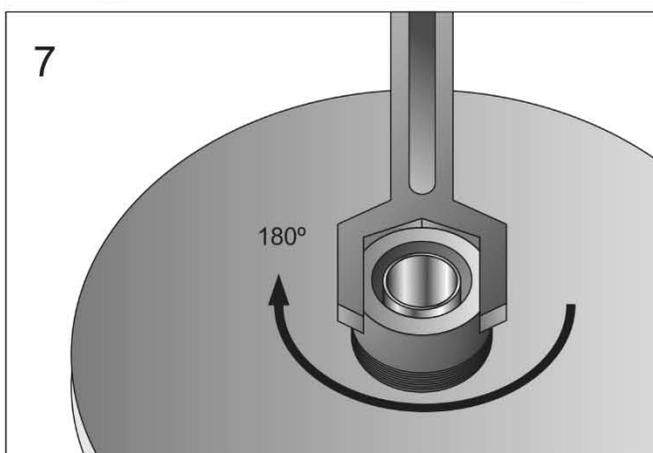
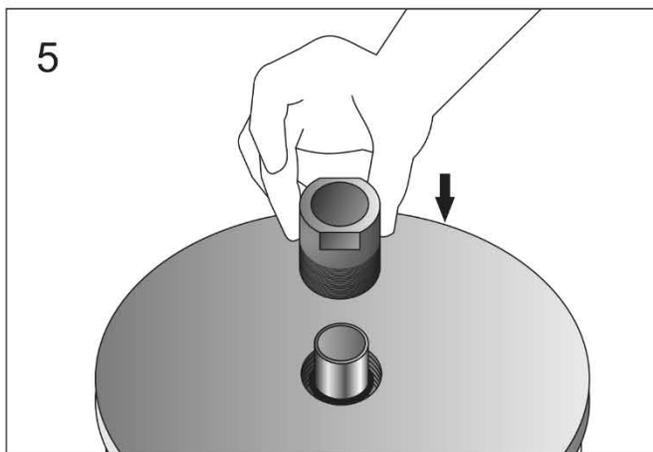
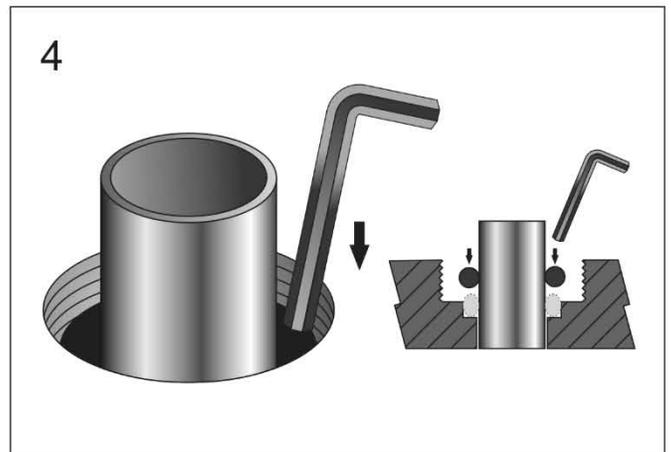
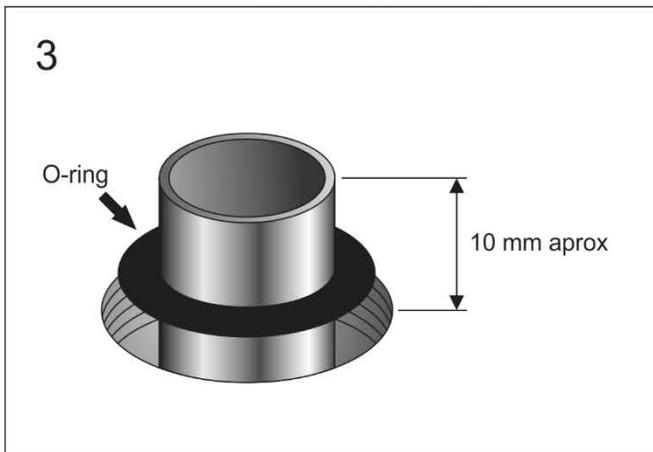
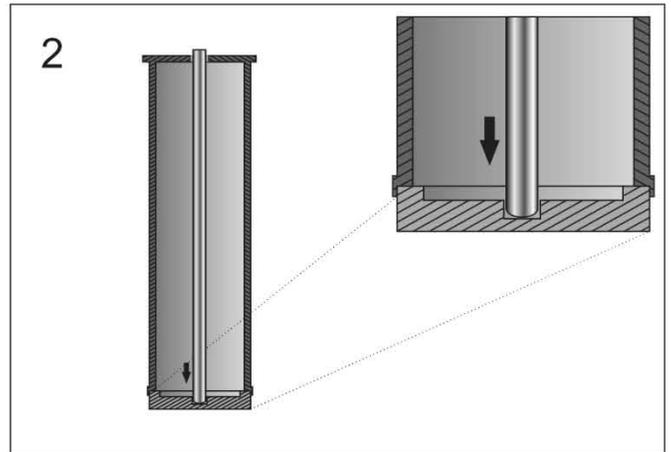
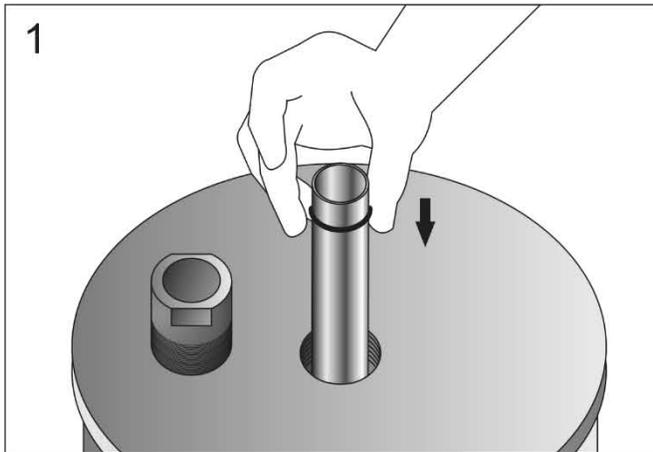
INSTALLATION (UV LP AISI 316L SS)

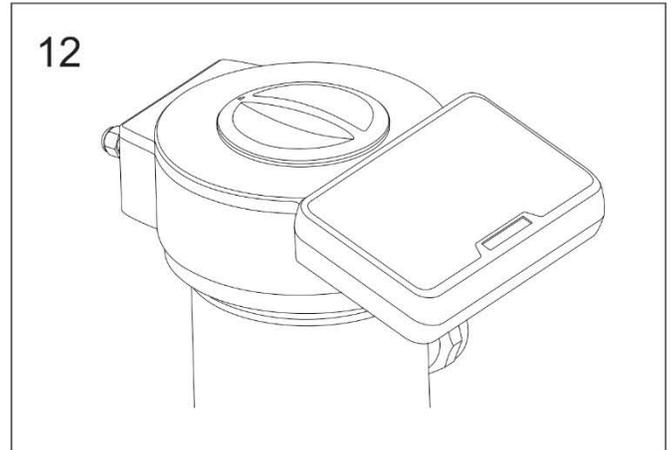
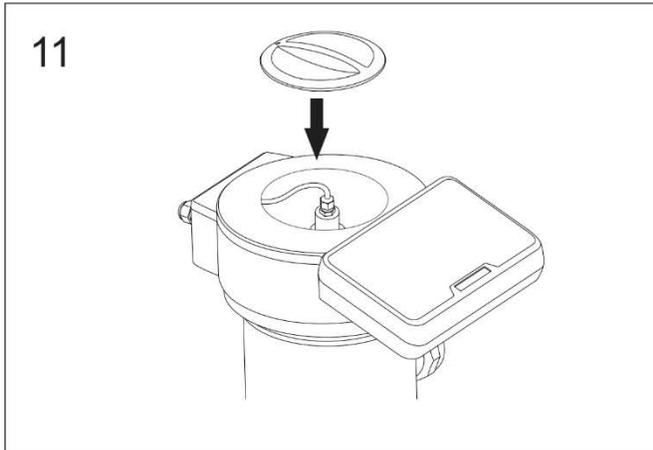
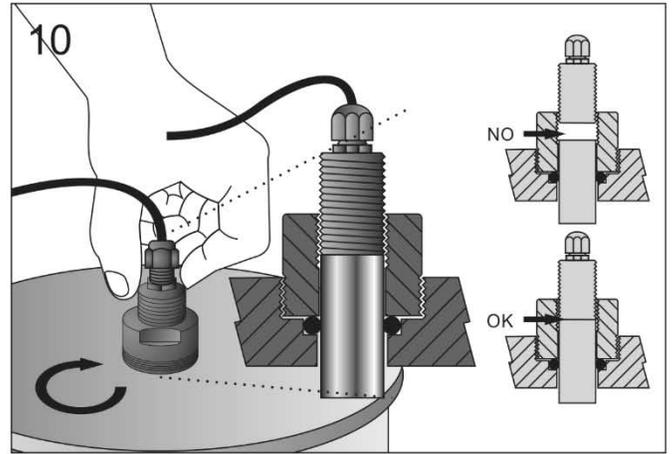
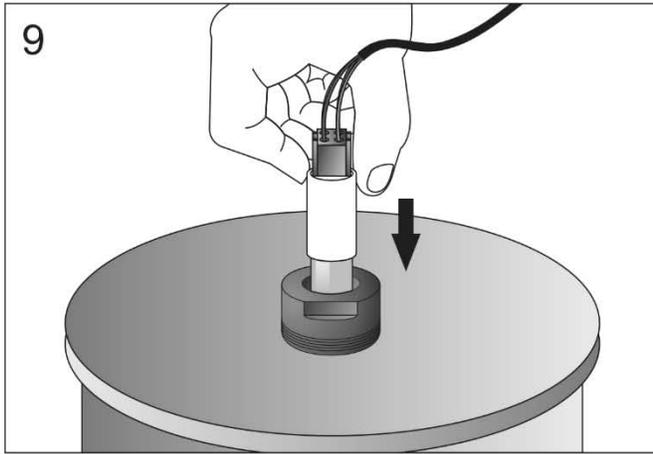


UV MAINTENANCE: LAMP/QUARTZ TUBE (UV LP PE POLYTHENE)



INSTALLATION (UV LP PE POLYTHENE)

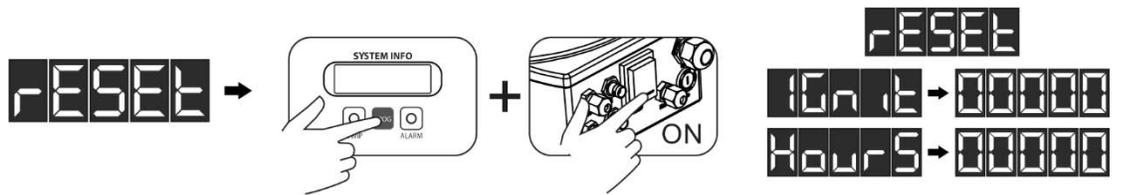




Remember



Whenever a lamp is replaced, the partial hours counter and the lamp strikes (ignitions) counter must be reset to zero. Do this by turning the system on with the general ON/OFF switch while holding down the "PROG" key [3] on the control panel until the main display screen [1] displays the message "RESET".



6.2. Calibrating the pH sensor (only in UV LP+ models)

The recalibration frequency must be individually determined in each installation. However, we recommend this be done at least once per month while the pool is in use. The integrated pH controller has two methods for calibrating the pH electrode: "FAST" and "STANDARD".

6.2.1. THE "FAST" METHOD

"FAST" mode allows routine recalibration of the electrode when there are small errors in calibration, **without requiring the electrode to be removed nor the use of calibration solutions.**

PROCEDURE:

1. Ensure that the electrode is immersed in water and that the filter system is running.
2. Use a pH kit to measure the existing pH of the water in the pool.
3. Press the "CAL" key [8] for about 5 seconds. The pH display screen [5] will go out and you will hear a "beep". When you release the "CAL" key, the set-point display [6] will display "7.0" flashing.
4. Press the "SET" key [7] repeatedly until the display shows the pH value previously measured in the water with the pH kit. When the correct value is displayed, press the "CAL" key [8]. If no errors are detected, the system will be correctly recalibrated.

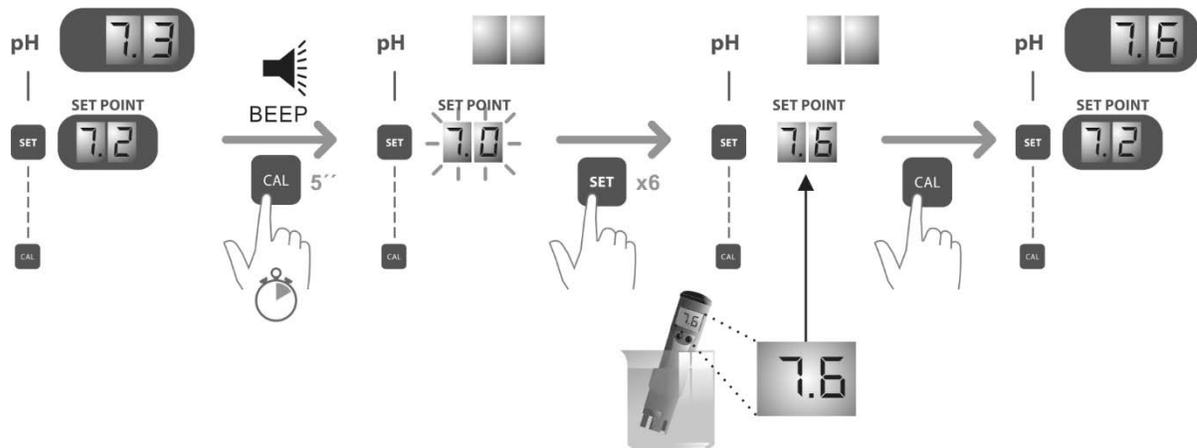


Fig. 14

6.2.2. THE “STANDARD” METHOD

“STANDARD” calibration allows precise calibration of the electrode using two calibration solutions with pH 7.0 and pH 4.0. However, this required that the electrode be removed from the installation.

PROCEDURE:

1. Remove the electrode from the probe holder and rinse it with abundant water.
2. Press the “CAL” [8] and “SET” [7] keys simultaneously during several seconds, until the upper display screen [5] blinks, displaying “7.0” (Fig. 15a).
3. Shake the electrode gently to remove any drops of water on it, then insert it into the pH 7.0 calibration solution. Stir it around in the solution for a few seconds, then press “CAL” [8]. After the reading has been confirmed, the upper screen will display “7.0”, and then display “4.0” flashing, to indicate that we should proceed with the next phase of calibration.

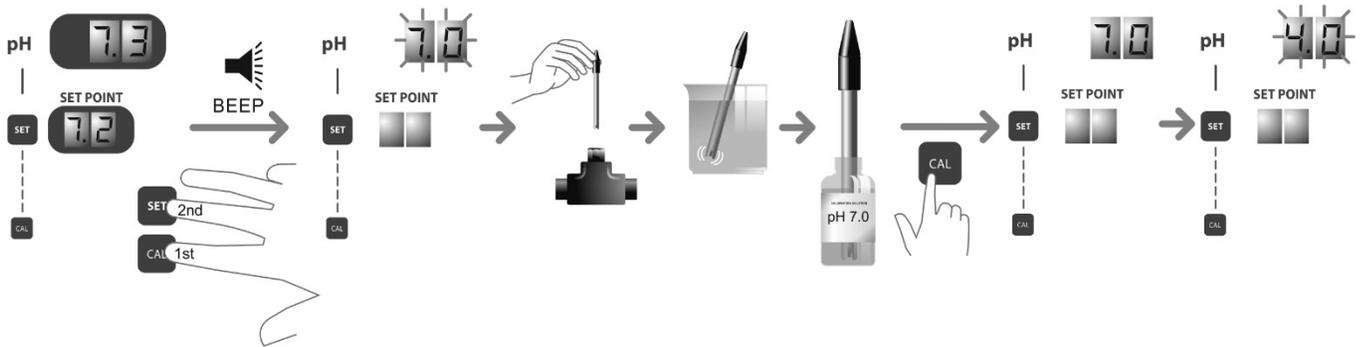


Fig. 15a

4. Take the electrode out of the calibration solution and rinse it in abundant water.
5. Shake the electrode gently to remove any drops of water on it, then insert it into the pH 4.0 calibration solution. Stir it around in the solution for a few seconds, then press “CAL” [8]. After the reading has been confirmed, the upper screen will display “4.0”, then you will hear 2 “beeps”, indicating that the process has been completed. The controller will automatically exit the calibration mode and become operative. (Fig. 15b).

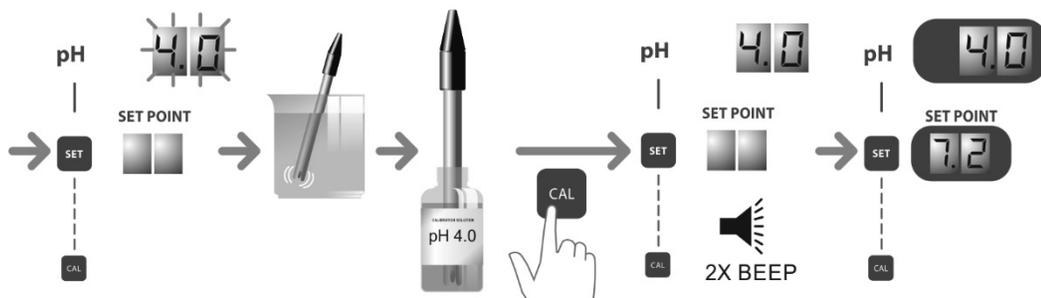


Fig. 15b.

ERROR MESSAGES:



If the calibration process is interrupted for any reason, the controller will automatically exit calibration mode after a few seconds with no user actions. In this case, the message “E1” will appear briefly on the upper screen [5].



If the pH value detected during calibration differs greatly from the expected one (e.g., faulty probe, etc.), “E2” will appear on the upper screen [5] and calibration will not be allowed.



If the pH measurement is unstable during the calibration process, the code “E3” will appear on the upper screen [5]. In this case, the sensor calibration will not be allowed either.



NOTE: sudden failure of the sensors can cause excessive chlorine dosing. Suitable precautions must be exercised to prevent this possibility. Remember that when there are high chlorine levels, the DPD colorimetry test will not show any colours, since the DPD reagent degrades if the chlorine concentration is too high.

6.3. Calibrating the ORP sensor (only in UV LP+ models)

The recalibration frequency must be individually determined in each installation. However, we recommend this be done at least once per month while the pool is in use. The ORP controller has an automatic calibration system for the ORP sensor that uses a 470 mV calibration solution.

PROCEDURE:

1. Remove the electrode from the probe holder and rinse it with abundant water.
2. Press the "CAL" key [8] for approximately 2 seconds, until you hear a "beep" and the screen [5] displays "470" flashing.
3. Shake the electrode gently to remove any drops of water on it, then insert it into the 470 mV calibration solution. Stir it around in the solution for a few seconds, then press "CAL" [8]. If the calibration process is completed satisfactorily, you will hear 2 "beeps", and the controller will be calibrated and ready to operate.

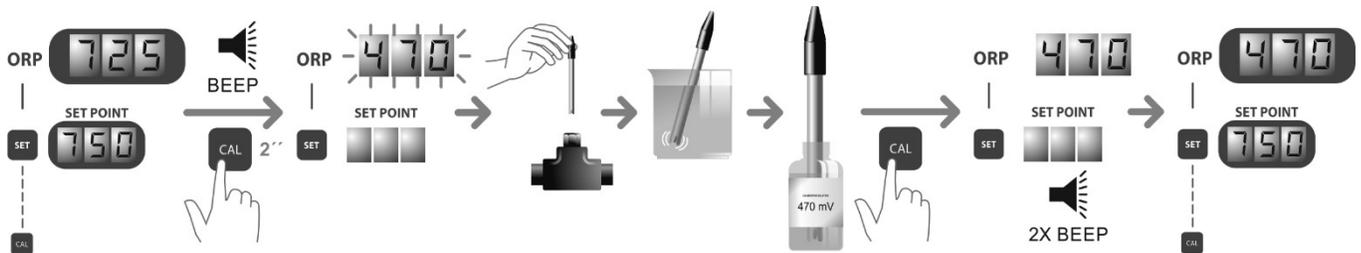


Fig. 16

ERROR MESSAGES:



If the calibration process is interrupted for any reason, the controller will automatically exit calibration mode after a few seconds with no user actions. In this case, the message "E1" will appear briefly on the upper screen [5].



If the ORP value detected during calibration differs greatly from the expected one (e.g., faulty probe, etc.), "E2" will appear on the upper screen [5] and calibration will not be allowed.



If the ORP measurement is unstable during the calibration process, the code "E3" will appear on the upper screen [5]. In this case, the sensor calibration will not be allowed either.

6.4. Maintenance of the pH/ORP sensors

1. Ensure that the sensor membrane is always damp.
2. If a sensor will not be used for an extended period of time, store it in a protective pH 4.0 solution.
3. To clean a sensor, do not use abrasives that could score its surface.
4. pH and ORP sensors are consumable items that must be replaced after a certain period of use.

7. PROBLEMS / SOLUTIONS: _____

Any work required on the system to solve a problem should always be carried out with the system disconnected from the electrical supply. Problems not included in the following list should be remitted to the technical service department.

PROBLEM	SOLUTION
The unit does not turn on	<p>Check that it is properly connected to a 230 V/50-60 Hz supply in the pool's electrical control panel.</p> <p>Check fuse F1, in the lower part of the unit.</p>
The system does not activate the pH control dosing pump	<p>Check that the pH of the water is within the range 6.5 ... 8.5.</p> <p>Correct the pH manually using a suitable product (pH-minus/pH-plus), depending on the deviation of this parameter.</p> <p>Check fuse F2, located on the pH control board [P2].</p>
The system does not activate the chlorine dosing pump or the ORP treatment system	<p>Check that the ORP of the water is below 850 mV.</p> <p>Correct the concentration of chlorine or the treatment agent manually, using a suitable product.</p> <p>Check fuse F3, located on the ORP control board [P3].</p>
The pH/ORP controller always indicates high values, or the readings are unstable	<p>The connection cable of the pH/ORP sensor is damaged. Clean the contacts or replace the cable.</p> <p>The pH/ORP sensor has an air bubble near to the membrane. Install the sensor in a vertical position. Shake the sensor gently until the air bubble disappears.</p> <p>Faulty pH/ORP sensor. The connection cable is too long or passes close to sources of electromagnetic interference (motors, etc.). Replace the sensor. Install the unit as close as possible to the sensor.</p>
The pH/ORP sensor cannot be calibrated	<p>The calibration solution has expired or is contaminated.</p> <p>The sensor membrane is blocked. Check that the membrane is not damaged. Clean the sensor with dilute acid, shaking it gently.</p> <p>Faulty sensor. Replace with a new sensor.</p>
The pH/ORP sensor is slow to respond	<p>Electrostatic charges on the sensor. During calibration, the sensors must not be dried with paper or cloth. Clean them only with water, shaking them gently.</p> <p>Insufficient renovation of the water analysed (no water flow past the sensor). Check that the tip of the sensor is immersed in water and that there are no air bubbles.</p>

8. WARRANTY CONDITIONS: _____

8.1. GENERAL CONSIDERATIONS

8.1.1 In accordance with these conditions, the seller guarantees that the product covered by this guarantee conforms to its specifications at the moment of its delivery.

8.1.2 The total warranty period is 3 YEARS, except for the following components:

LAMP: 13,000 hours or 1,000 strikes (ignitions).

ELECTRONIC BALLAST: 2 YEARS

pH/ORP SENSORS: 6 MONTHS

8.1.3 The Warranty period will be calculated from the date of delivery to the purchaser.

8.1.4 If the Product fails compliance and the purchaser informs the seller during the Warranty Period, the seller shall repair or replace the Product, at its own expense, in the place that they deem appropriate, unless this proves impossible or involves a disproportionate effort.

8.1.5 If the Product cannot be repaired or replaced, the purchaser may request a proportional reduction in the price, or, if the compliance failure is sufficiently important, the termination of the sales contract.

8.1.6 All parts replaced or repaired under this warranty will not extend the warranty period of the original Product, although they will be covered by their own warranty.

8.1.7 In order for this warranty to be effective, the purchaser will provide proof of the date of purchase and delivery of the Product.

8.1.8 When more than six months have passed from the delivery date of the Product to the purchaser, and if the purchaser claims a compliance failure of said Product, the purchaser shall provide evidence of the origin and the existence of the alleged fault.

8.1.9 This Warranty Certificate does not limit nor prejudice any consumer rights under other national laws in force.

8.2. SPECIFIC CONDITIONS

8.2.1 For this warranty to be effective, the purchaser shall strictly adhere to the Manufacturer's instructions included in the documentation provided with the Product, whenever these are applicable according to the Product range and model.

8.2.2 When a programme is set for the replacement, maintenance or cleaning of certain Product parts or components, the warranty will only be valid if said programme has been followed correctly.

8.3. LIMITATIONS

8.3.1 This warranty will only be applicable for sales addressed to consumers. By "consumer", we refer to any individual who acquires the Product for any purpose that falls outside his or her professional activity.

8.3.2 No guarantee is offered for normal product wear, nor for any fungible parts, components, materials or consumables (except for electrodes).

8.3.3 The warranty does not cover instances where the Product: (i) has been misused; (ii) has been inspected, repaired, maintained or manipulated by unauthorised personnel; (iii) has been repaired or maintained with non-original parts or (iv) has been incorrectly installed or commissioned.

8.3.4 When compliance failure of the Product is due to incorrect installation or commissioning, this warranty will only be effective if such installation or commissioning process is included in the sales contract of the Product and has been performed by the seller, or under the seller's responsibility.

8.3.5 Damages or faults in the Product due to any of the following causes:

- o Operation at a pH greater than 7.6
- o Explicit use of unauthorised chemical products.
- o Exposure to corrosive atmospheres and/or temperatures below 2°C (36°F) or above 40°C (104°F).

EN PRODUCTS
FR PRODUITS
ES PRODUCTOS
IT PRODOTTI
DE PRODUKTE
PT PRODUTOS

UV TREATMENT SYSTEM
SYSTÈME DE TRAITEMENT UV
SISTEMA DE TRATAMIENTO UV
SISTEMA DI TRATTAMENTO UV
UV-BEHANDLUNG-SYSTEM
SISTEMA DE TRATAMENTO UV

HELIOX UV LP

AISI 316 L	PE
HELIOX-10 52206	HELIOX-P10 52214
HELIOX-14 52207	HELIOX-P14 52215
HELIOX-25 52208	HELIOX-P20 52216
HELIOX-30 52209	HELIOX-P25 52217

HELIOX UV LP+

AISI 316 L	PE
HELIOX-10+ 52210	HELIOX-P10+ 52218
HELIOX-14+ 52211	HELIOX-P14+ 52219
HELIOX-25+ 52212	HELIOX-P20+ 52220
HELIOX-30+ 52213	HELIOX-P25+ 52221

DECLARATION EC OF CONFORMITY

The products listed above are in compliance with:

Low Voltage Directive (LVD) 2006/95/EC.
Electromagnetic Compatibility Directive (CEM)
2004/108/EC.
ROHS Directive 2011/65/EC.

DÉCLARATION CE DE CONFORMITÉ

Les produits énumérés ci-dessus sont conformes à:

La Directive des Appareils à Basse Tension (LVD)
2006/95/EC.
La Directive de Compatibilité Électromagnétique (CEM)
2004/108/EC.
La Directive ROHS 2011/65/EC.

DECLARACION CE DE CONFORMIDAD

Los productos arriba enumerados se hallan conformes con:

Directiva de Equipos de Baja Tensión (LVD) 2006/95/EC.
Directiva de Compatibilidad Electromagnética (CEM)
2004/108/EC.
Directiva ROHS 2011/65/EC.

DICHIARAZIONE CE DI CONFORMITÀ

I prodotti di cui sopra adempiono alle seguenti direttive:

Direttiva per gli Apparecchi a Bassa Tensione (LVD)
2006/95/EC.
Direttiva di Compatibilità elettromagnetica (CEM)
2004/108/EC.
Direttiva ROHS 2011/65/EC.

KONFORMITÄT SERKLÄRUNG CE

Die oben aufgeführten Produkte sind konform mit:

Richtlinie für Niederspannungsanlagen (LVD)
2006/95/EC.
Richtlinie zur elektromagnetischen Kompatibilität (CEM)
2004/108/EC.
Richtlinie ROHS 2011/65/EC.

DECLARAÇÃO CE DE CONFORMIDADE

Os produtos relacionados acima estão conformes as:

Directiva de Equipamentos de Baixa Tensão (LVD)
2006/95/EC.
Directiva de Compatibilidade Electromagnética (CEM)
2004/108/EC.
Directiva ROHS 2011/65/EC.

I.D. ELECTROQUIMICA, S.L.
Pol. Ind. Atalayas, Dracma R-19
E-03114 ALICANTE. Spain.

Signature / Qualification:

Signature / Qualification:

Firma / Cargo:

Firma / Qualifica:

Unterschrift / Qualifizierung:

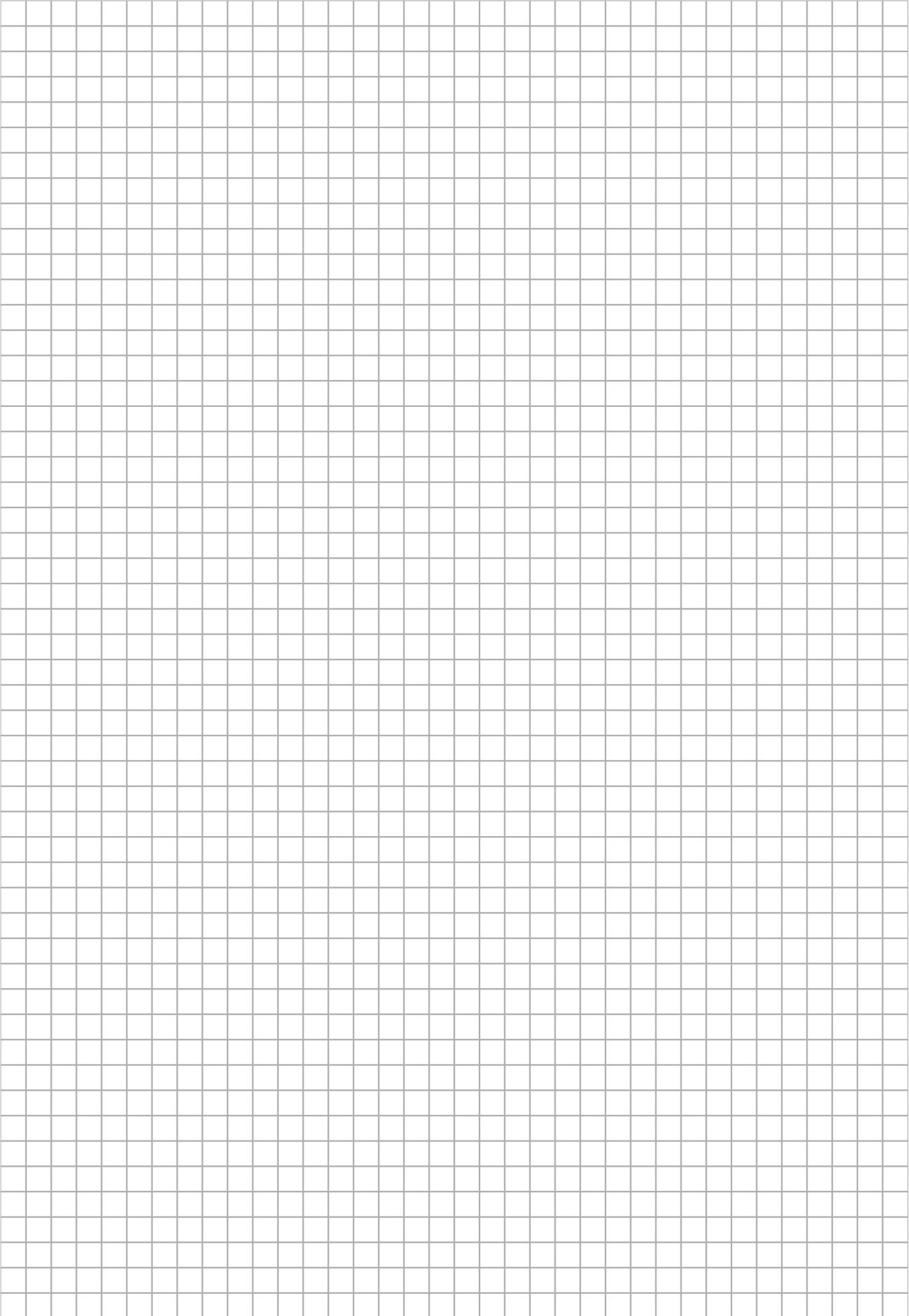
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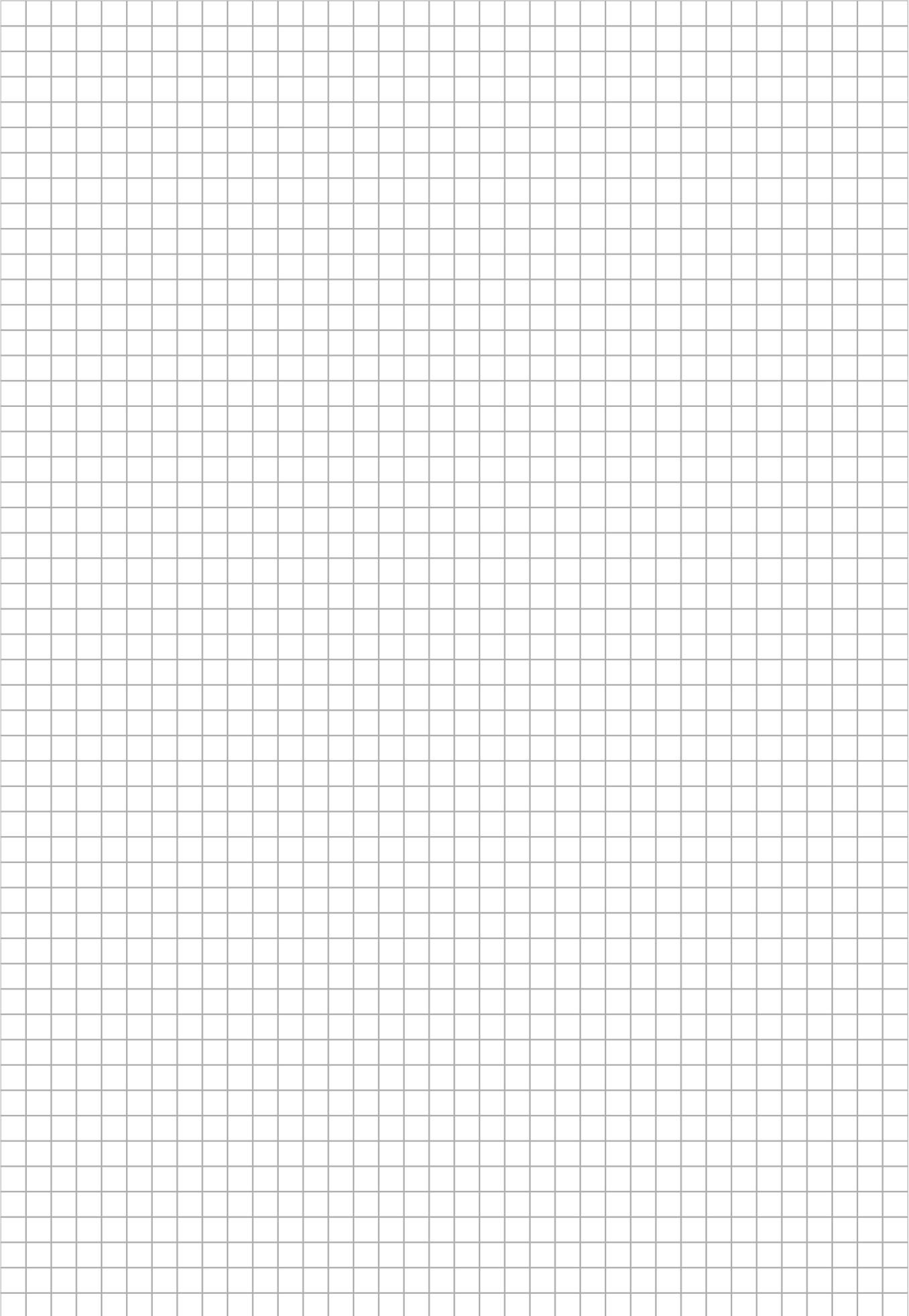
Handtekening / Kwalificatie:



Gaspar Sánchez Cano
Gerente

01-09-2012





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