NEOLYSIS PRIVATE SYSTEM
PRIVATE SYSTÈME D'NEOLYSIS
SISTEMA NEOLYSIS PRIVADO
NEOLYSIS SISTEMA PRIVATO
NEOLYSIS PRIVATE SYSTEM
NEOLYSIS SISTEMA PRIVATE

EN

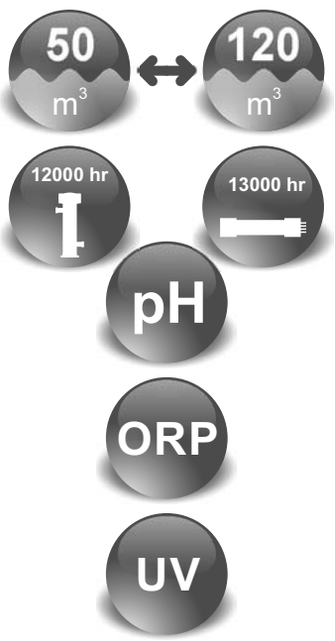
neolysis®

Model.

NEO-12
NEO-24
NEO-32

NEO-12 PH
NEO-24 PH
NEO-32 PH

NEO 12 +
NEO 24 +
NEO 32 +



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 INSTRUÇOES E MANUTENÇAO

ASTRALPOOL

Vers.20160808

ENGLISH:

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 Neolysis® NEO Treatment Systems, follow the instructions below:

1. CHECK THE CONTENTS OF THE BOX:

You should find the following accessories inside the box:

- Power Supply
- Neolysis reactor
- Combined pH sensor " neo_ph & neo_+" / ORP EX sensor "neo_+".
- Calibration solutions: pH 7.0 (green) & pH 4.0 (red) " neo_ph & neo_+" / ORP 470 mV "neo_+".
- Probe holder " neo_ph & neo_+".
- CEE22 M connector to connect dosing pump " neo_ph & neo_+".
- Equipment 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 NEO treatment system, together with the maintenance of a certain level of chlorine in the pool water, guarantees its healthiness. The NEO treatment system should operate while the pool's recirculation system (pump and filter) are running.

The NEO 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 Polythene versions available
- o Electronic ballast with integrated controller.
- o Integrated pH & ORP control versions available (NEO_pH, NEO_+ models).
- o Operating hours counter.
- o Input for external flow switch.
- o Low pressure HO lamp.
- o UV Dose: 30 mJ/cm^2.
- o Lamp life: 13,000 hours (depending on number of lamp strikes).

The combination of the UV technique with low saline electrolysis in a single reactor has resulted in an innovative solution for the treatment and disinfection of swimming pool water (residential and public). The Neolysis system is capable of combining the most notable features and advantages of each of the techniques separately, whilst mutually correcting their defects, drawbacks or limitations. Both UV and electrolysis techniques are well-known and marketed; however, the surprising results of this combination in a single reactor has not been claimed or considered until now. The main features and advantages are:

- It reduces the need to add salt to the swimming pool.
- Double disinfection effectiveness (UVC + Chlorine on-site/Anodic oxidation).
- Superior chloramine elimination capability (UVC + Cathodic reduction).
- It increases the positive effects of sustainability through water and energy savings.
- Filter washing with the sole purpose of reducing chloramine concentration (<0.6ppms) by dilution is eliminated.
- Interesting synergic treatment, with its oxidative capacity with residual effects.
- It completely eliminates the need to add salt or chlorate products (hypochlorite, chlorine tablets, etc.).

Neolysis, the most-advanced treatment: + Sustainability + Disinfection + Innovation + Health

2.2. 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.

The Neolysis® 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 Neolysis® treatment systems are not waterproof and must be installed under cover. They should never be installed in areas at risk of flooding.

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 replacement parts supplied by the manufacturer.

Never remove the retention nut of the quartz housing when water is circulating (or there is water pressure) inside the reactor, since it could be ejected and cause damage.

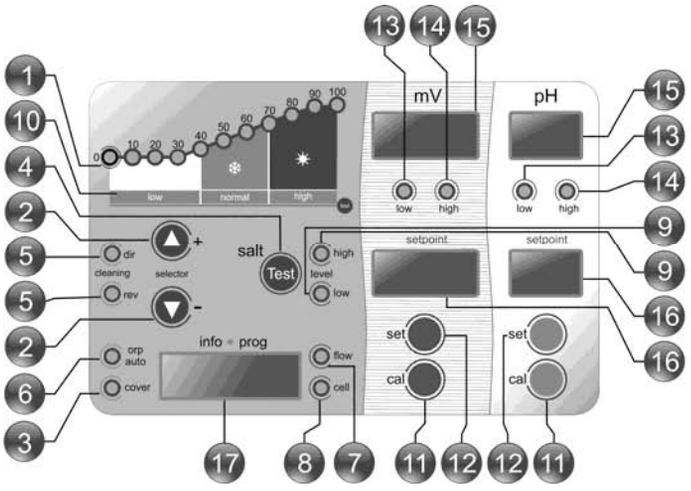
The UV radiation produced by this equipment can cause serious harm if eyes or skin are exposed directly to the lamp. Never connect the equipment when the lamp is outside the reactor.

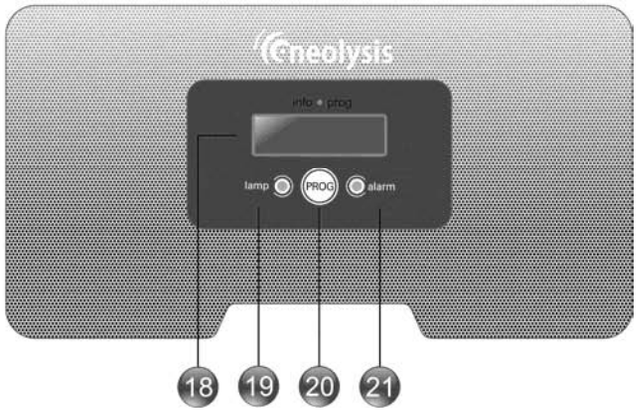
Never handle the UV lamp until it is completely cold.

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:





INFORMATION DISPLAYS:

1) Production scale (%) 2) Increase / decrease production keys 3) Automatic cover control indicator 4) Salinity test 5) Auto-cleaning (direct/reverse polarity) indicators 6) ORP control indicator activated (auto mode) 7) FLOW Alarm indicator 8) Passive cell alarm indicator 9) High and low salinity level Indicators 10) Salinity scale (Qualitative) 11) Calibration mode keys (pH and ORP) 12) pH/ORP set-point programming keys	13) Low pH/ORP alarm indicator (pH <6.5, mV< 650) 14) High pH/ORP alarm indicator (pH >8.5, mV> 850) 15) pH/ORP reading display 16) pH/ORP set-point display. 17) Electrolysis/Neolysis system info/configuration display 18) UV system data display 19) Lamp alarm 20) INFO key 21) Alarms

MODELS:

			Production	Up to swimming pools of
NEO 12	**NEO 12 pH**	**NEO 12 pH-ORP**	12 gr Cl2/hr + 48W UV	50 m3
NEO 24	**NEO 24 pH**	**NEO 24 pH-ORP**	24 gr Cl2/hr + 56W UV	80 m3
NEO 32	**NEO 32 pH**	**NEO 32 pH-ORP**	32 gr Cl2/hr + 56W UV	120 m3

POWER SUPPLY

DESCRIPTION	MODEL		
	NEO-12 / NEO-12 PH NEO-12 pH-ORP	NEO-24 / NEO-24 PH NEO-24 pH-ORP	NEO-32 / NEO-32 PH NEO-32 pH-ORP
Operating voltage	230 V AC, 50/60 Hz.		
Consumption (A AC)	0.36 A	0.72 A	0.89 A
Fuse (5x20 mm)	2 AT	3.15 AT	4 AT
Output (DC)	12 A (2x6 A)	24 A (2x12 A)	32 A (2x16 A)
Production (gr.Cl_2/hr)	10 - 12	20.-24	25.-32
Swimming Pool m3 (+ 25ºC)	50	80	120
Salinity (low salt)	2-3gr/L		
Ambient temperature	max. 40ºC		
Surround	ABS		
Polarity inversion	2h,3h and test (config. menu)		
Production control	0-100% (11 production levels)		
Flow sensor (gas)	config menu. : active-inactive. Led flow		
Flow switch detector	Config. Menu: active-inactive. Led flow. Sensor not included		
Control Production by cover	Config. Menu 9 states (10...90%), (0,NC,NO). Voltage-free contact. Led COVER.		
External Production Control	Config. Menu 2 states (0, set%), (O,NC). Voltage-free contact. Led ORP.		
Diagnos. Electrodes	Led Check Electrodes		
pH safety stop	If, config soft 1...99min		
Salinity test (qualitative)	Test key, 7 conductivity levels		
Salt alarm indicator	High and low. 2 LEDs		
Config. Menu System	Information display		
Remote control (cable)	Optional (up to 50 metres)		
Modbus & Poolstation (compatible)	Yes		

NEOLYSIS CELL

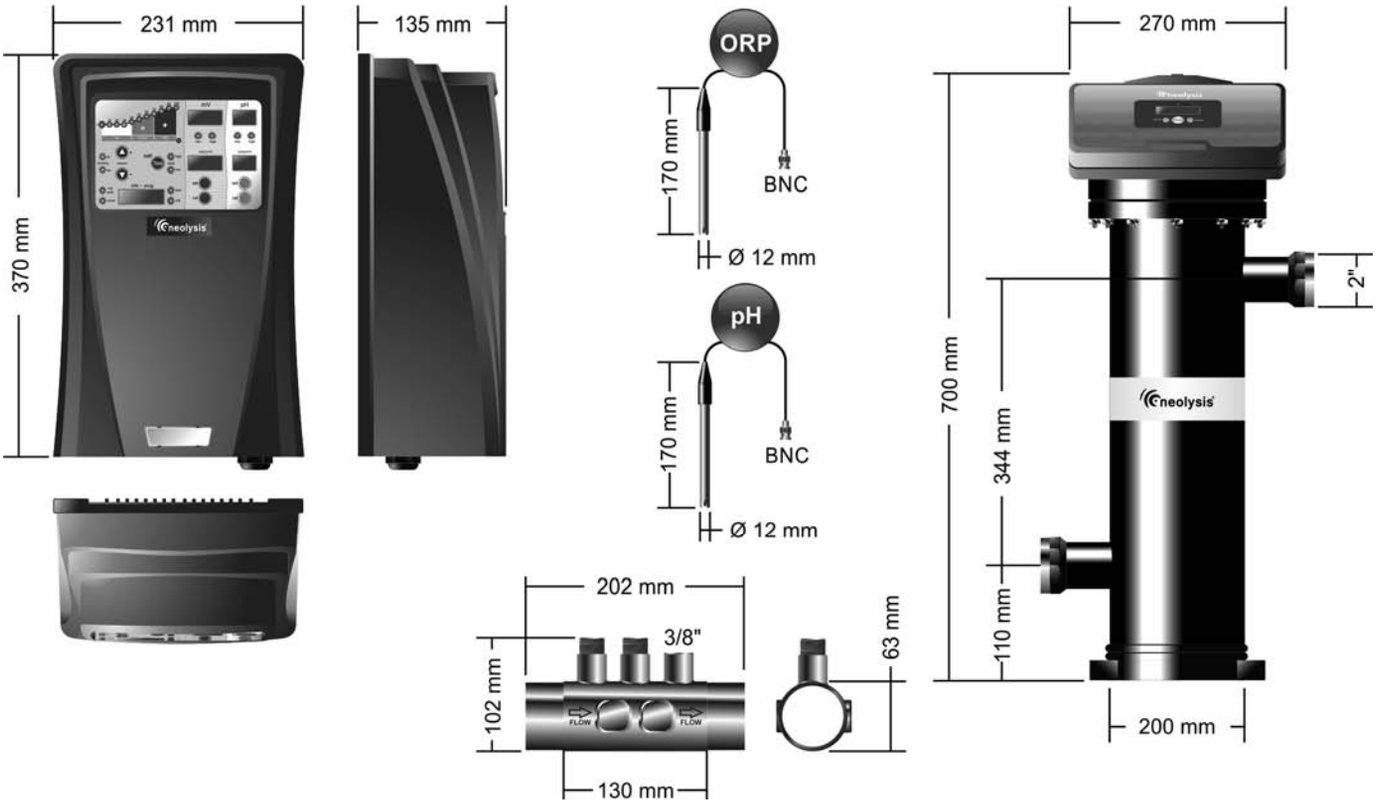
DESCRIPTION	MODEL		
	NEO-12 / NEO-12 PH NEO-12 pH-ORP	NEO-24 / NEO-24 PH NEO-24 pH-ORP	NEO-32 / NEO-32 PH NEO-32 pH-ORP
Electrodes (self-cleaning activated titanium)	LS: 10,000 - 12,000 hrs		
Min. flow (m3/h)	2	4	6
Number of electrodes	7	9	7
Material - Connection to piping	Polythene - R-Female 2"		
P (Kg/cm2) & T (oC) max.	3Kg/cm2 & 15 - 40ºC max.		
UV/UV-C Power	48W/13 W	56W/18W	56W/18W
Lamps / Hours	1/13,000 hrs		
Fuse (UV) (6x32mm)	0.6 AT		

PH / ORP CONTROLLER

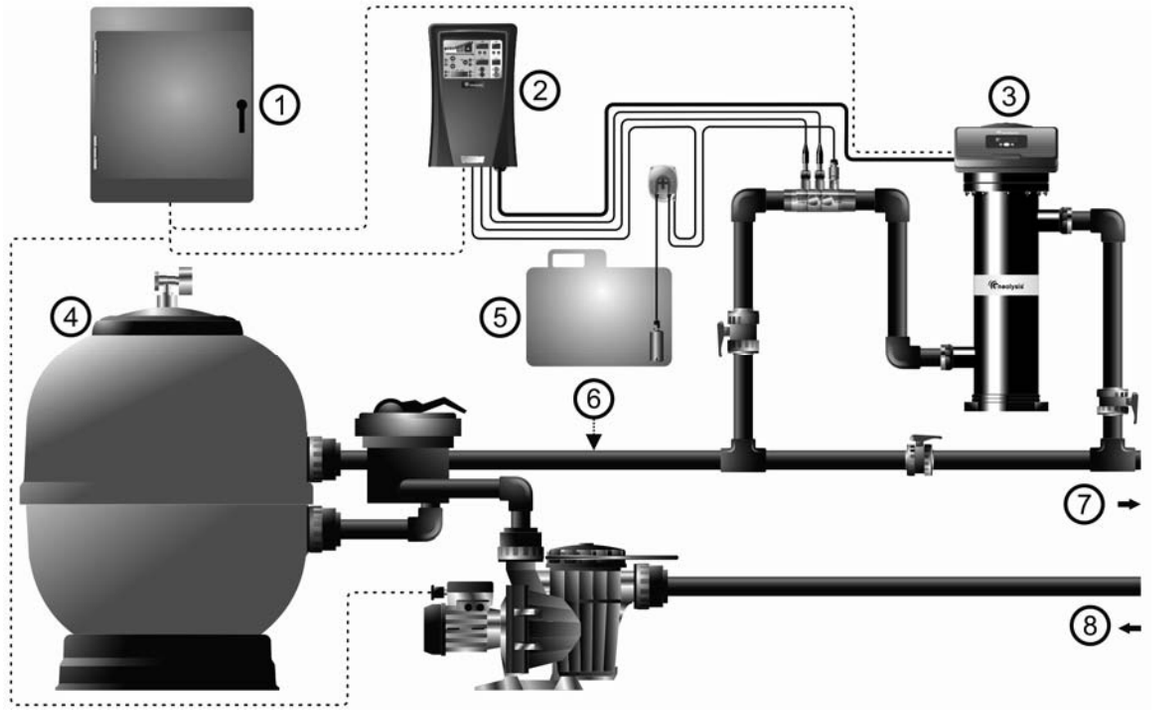
DESCRIPTION	NEO pH & NEO pH-ORP MODEL
Measurement range	0.0 - 9.9 (pH) / 0 - 999 mV (ORP)
Control range	7.0 - 7.8 (pH) / 600 - 850 mV (ORP)
Accuracy	± 0.1 pH / ±1 mV (ORP)
Calibration	Automatic, using calibration solutions
Control outputs (pH)	One 230 V / 500 mA max. output (connection for dosing pump)
pH and ORP sensors	12X150mm epoxy body, solid electrolyte. Range 0-12 pH, 0-1,000 mV

PROBE HOLDER: Included (NEO pH/+)

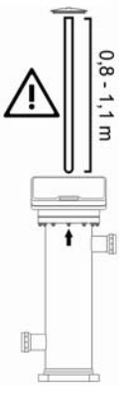
DIMENSIONS:



INSTALLATION DIAGRAM



1) Electrical control panel
2) Neolysis Control
3) Neolysis Cell
4) Filter
5) pH-minus
6) Other equipment
7) Outlet
8) Inlet



(Fig. 1)

4. INSTALLATION:

4.1. Neolysis® Reactor

The Neolysis® 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 Neolysis® treatment system is not waterproof and must be installed under cover.

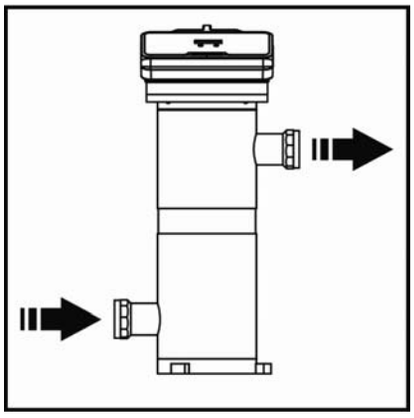
It is important to avoid the formation of corrosive atmospheres due to pH reducers (specifically, those based on hydrochloric acid, 'HCl'). Do not install the NEO system close to an area where these products are stored. We strongly recommend that products based on sodium bisulphate or dilute sulphuric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

The reactor vessel in the Neolysis® systems is made of Polyethylene. The UV lamp and electrodes are housed inside it. The Neolysis® system should **always** be installed **behind the filtration system and after the installation of other devices** such as heat pumps, etc.

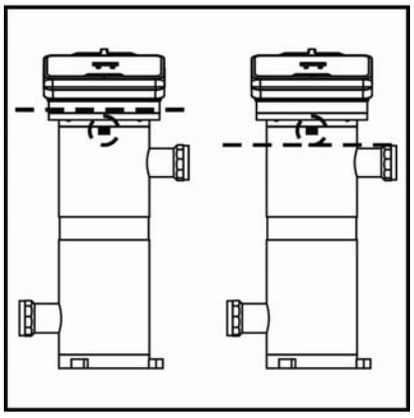
The installation should allow easy access to the UV lamp. The location chosen for the installation of the Neolysis® system should have sufficient height for the UV lamp to be completely extracted from its housing (approximately twice the total height of the unit).

The Neolysis® 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 to be performed 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.

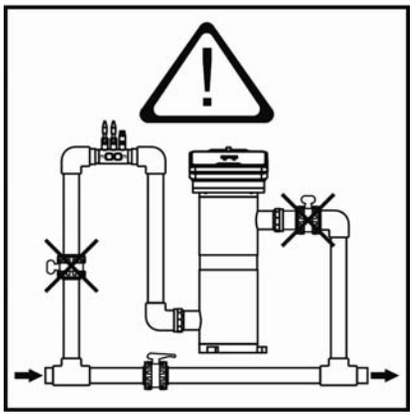
The water should always enter the unit at the bottom, to guarantee that the reactor vessel is always full with the lamp totally submerged.



1. The flow direction indicated in the diagram must be respected. The recirculation system must guarantee the minimum flow given inTTT the Technical Specifications Table (see section 10).



2. The flow detection system (gas detector) is activated when there is very low or no water recirculation (flow) through the cell, provided that the cell inlet valves are open. If they are closed, the system will not operate (See point 4.1/3). Electrolysis gas not being discharged generates a bubble that electrically isolates the auxiliary electrode (electronic detection). Therefore, when the electrodes are introduced into the cell, the gas detector (auxiliary electrode) must be located in the upper part of the cell. The safest arrangement is shown in the recommended installation diagram.



3. **WARNING:** The flow sensor (gas detector) will not work correctly, with the resulting risk of cell rupture, if the inlet and outlet valves to the pipes where the electrolysis cell is located are closed simultaneously. Although this is unlikely, **it can be avoided by blocking the return valve to the swimming pool once the equipment is installed,** so that it may not be accidentally manipulated.

4.2. Electrical installation

Connect Neolysis® to the electrical supply in the control panel of the filter system, **in such a way that the filter pump and the Neolysis® system are connected simultaneously**.

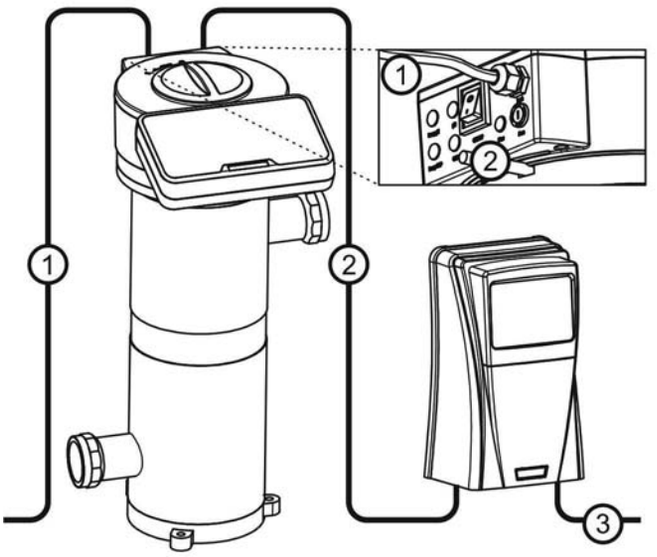
Remember

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

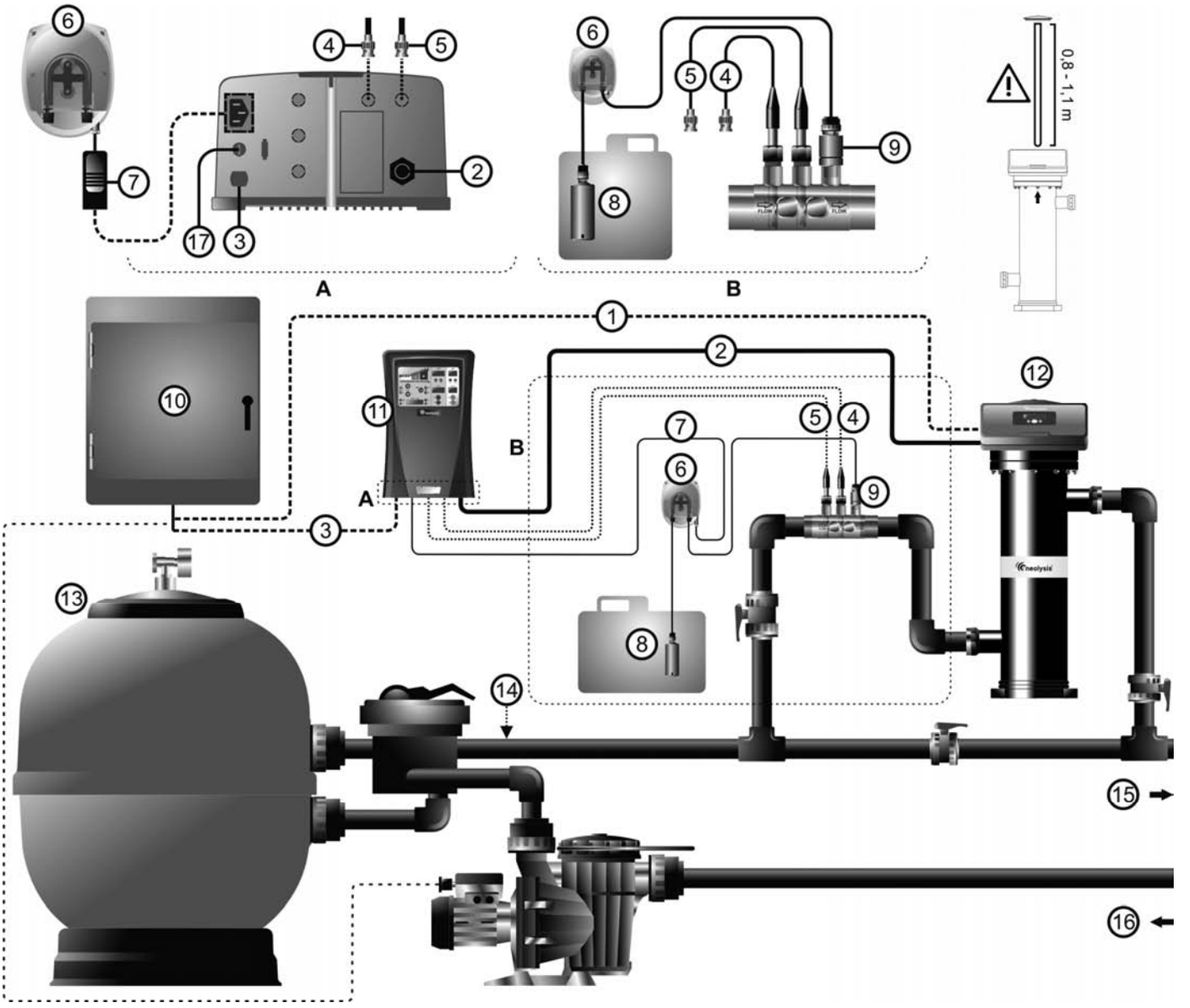
Applicable standards for prevention of accidents and for electrical installations must be respected.

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.

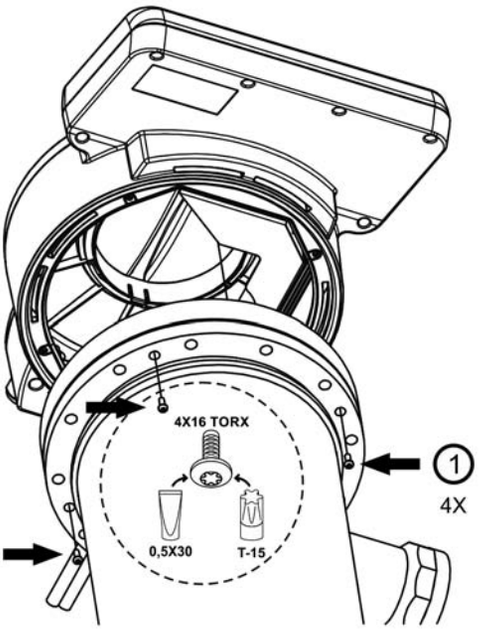
4.3.1 Electrical Connections



1) 220V AC input (UV)
2) NEO cell connection
3) 220V AC Input (POWER SUPPLY)
4) ORP sensor
5) pH sensor
6) Dosing pump
7) CEE22 connector
8) pH-minus
9) Injector
10) Electrical control panel
11) Neolysis Control
12) Neolysis Cell
13) Filter
14) Other equipment
15) Outlet
16) Inlet
17) Fuse (Power Supply)



4.3.2 Electrical Connections



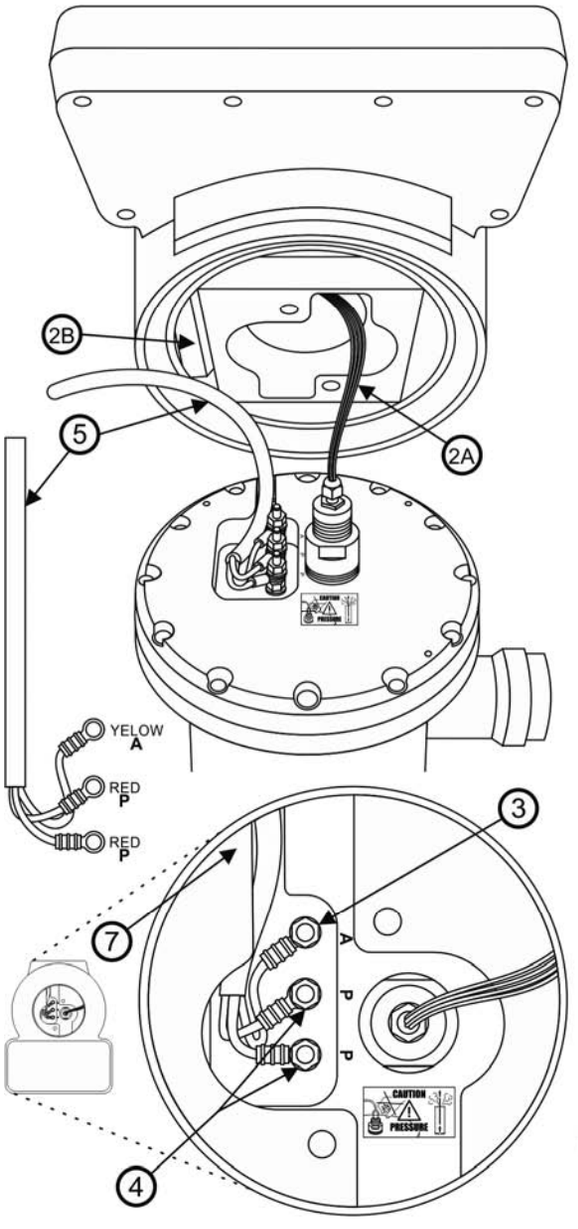
1)Undo the screws to remove the top of the equipment and access the contacts zone (4 torx screws).

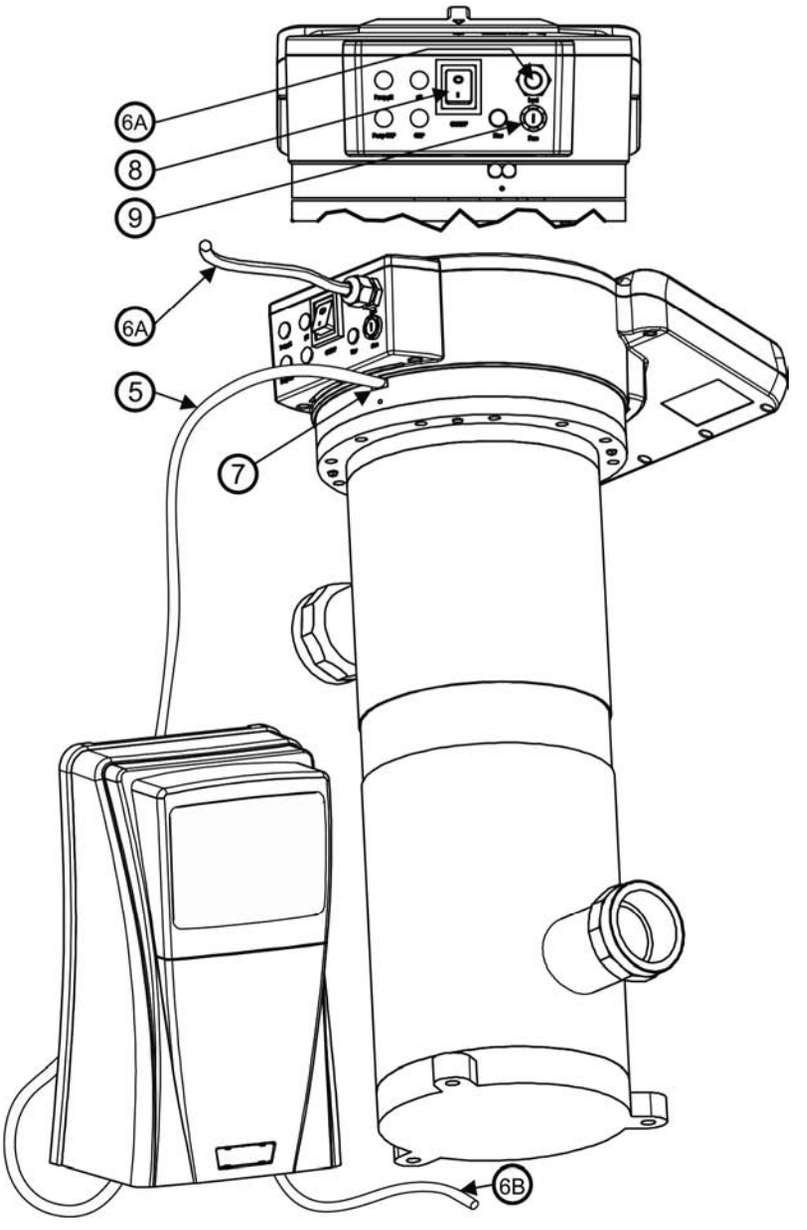
2A) U.V. lamp connection.
2B) Ballast

3) NEO cell connection (A: aux yellow)
4) NEO cell connection (P: Pole1 red, P:Pole2 red)
5) NEO cell cable (A, P, P)

6A) 220V AC input (UV)
6B) 220V AC input (POWER SUPPLY)

7) Inlet orifice for the NEO cell connection cable
8) On-Off switch for the ultraviolet light
9) Fuse (UV)





4.4. Installation of the pH / ORP Probes (only in NEO-PH and NEO + equipment)

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

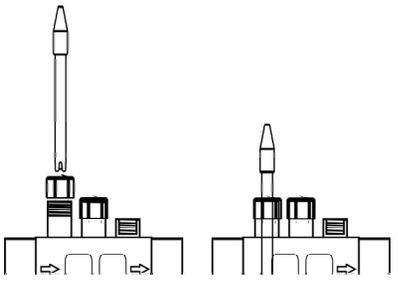


Fig. 2

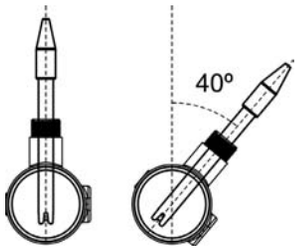
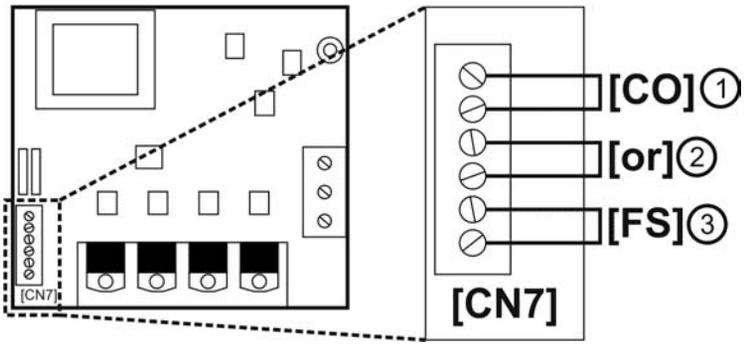


Fig. 3

4.5. Power Supply Control Inputs (Located on the power supply board)

In addition to the basic operations, the Neolysis Series Salt Electrolysis System has three voltage-free contact inputs, which allow connection to additional external controls. These inputs are located on the **[CN7]** connector of the power board (Fig. 4).



1) Automatic cover

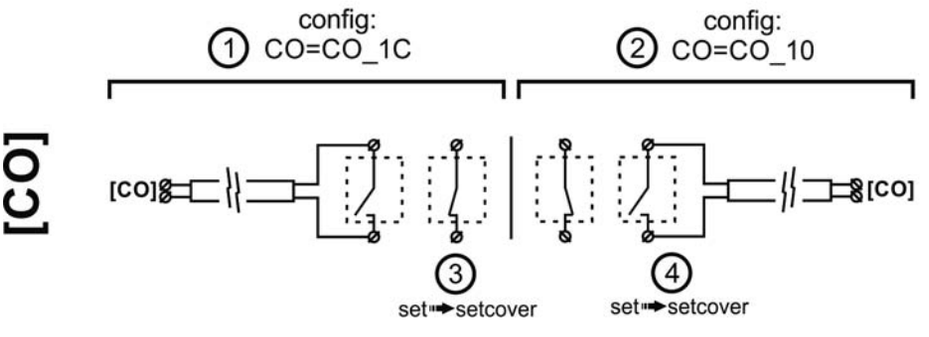
2) ORP controller / external residual chlorine
(not on Neo PLUS models with integrated ORP)

3) External flow detection (flow switch)

Fig. 4

The logic associated with these three inputs, as well as their activation/deactivation, can be programmed during the system configuration process.

[CO] AUTOMATIC COVER CONTROL: voltage-free contact input. Depending on the state of the contact connected to this input and located on the electrical control panel of the automatic cover, this input allows us to program a reduction in equipment production to a percentage of its nominal value.



① Configured cover CO_1C

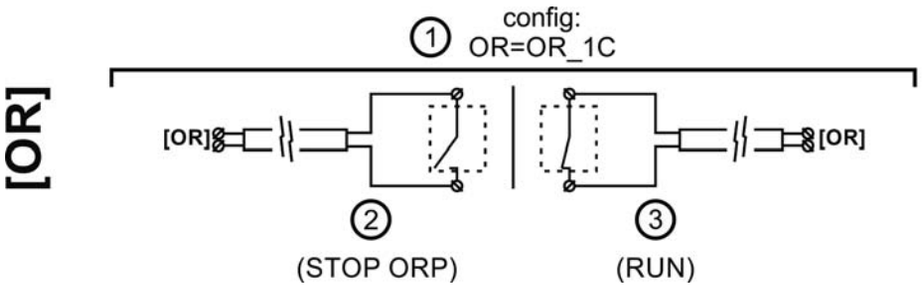
② Configured cover CO_1O

③ 'CO' closed: change production instruction %set → %setcover.

④ 'CO' open: change production instruction %set → %setcover.

Fig. 5

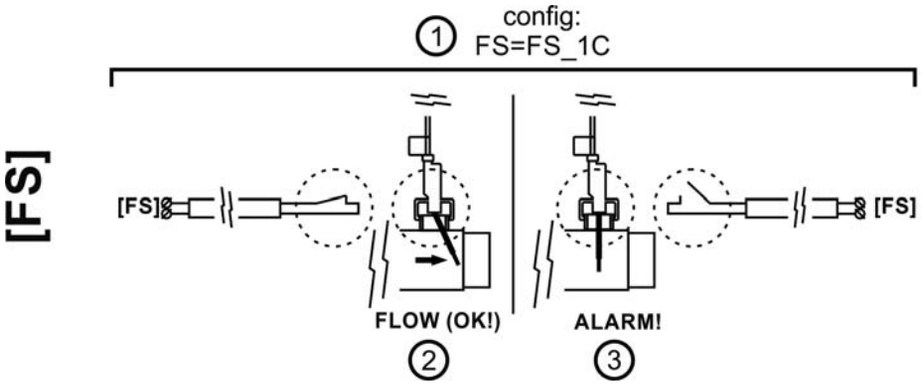
[or] ORP / CHLORINE EXTERNAL CONTROL (not available on NEO-PLUS equipment): voltage-free contact input. This input can be used to make the electrolysis system interact with an external controller (ORP, RESIDUAL CHLORINE, PHOTOMETER, etc.). To do this, it is only necessary to connect two wires from the voltage-free contact located on the external controller, to the corresponding **[or]** located on the unit power board.



1. **Configure OR=OR_1C, Auto. Mode**
2. 'OR' open, it stops electrolysis production (STOP ORP).
3. 'OR' closed, it activates electrolysis production (RUN).

Fig. 6

[FS] Control OPTIONAL EXTERNAL FLOW SENSOR (not supplied with the equipment): voltage-free contact input. Connect the external flow sensor cables to the corresponding **[FS]** input located on the **[CN7]** connector of the unit power board. When the contact connected to **[FS]** opens (external flow sensor at rest, fig 7), and **[FS]** has been configured as **[FS1c]**, the electrolysis system disconnects (flow alarm).



1. **[FS] input configured as [FS_1C]**
2. Operating system (Correct flow).
3. System stopped (Absence of flow). Flow alarm

Fig. 7

Note: if only one flow switch is installed, it is recommended to use it to control the UV lamp. We avoid high temperatures in the reactor if there is no flow (See 5.1.1 UV Flow Switch Installation).

4.6. Installation of the Removable Control Terminal (OPTIONAL)

In the Neolysis® series equipment it is possible to have an electrolysis system remote control, located in the swimming pool filter system using a wall terminal control installation. The interconnection between the power supply and the control terminal can be achieved using a 6-conductor signal cable connected to the corresponding connectors on the power and visual-display boards. The length of this cable is determined by the needs of the user, although it must not exceed 40 metres. The terminal is a 10.5 Vac element, self-powered from the communications bus; therefore, it does not require any additional power supply.

The terminal does not require any special maintenance procedure, with the exception of the following general conditions of use:

- Clean with a slightly moistened cloth.
- Do not use abrasive cleaning products (bleach, aerosols, solvents, alcohol, etc.)

The control terminal is designed to be mounted on a solid wall. Its IP-65 water-tightness rating allows it to be installed outside. Nevertheless, it is recommended not to expose the terminal to direct sunlight. To install the terminal, proceed as follows:

1. Remove the power supply chassis by undoing the fixing screw (Fig. 8-1) and slide upwards and outwards (Fig. 8-2). Proceed to turn the chassis towards the left (Fig. 8-3) and disconnect the communication cable (A) of the power board and the visual-display board (Fig. 8-4).
2. Unscrew the four retaining screws (Fig. 8-5).
3. Install the control terminal (Fig. 8-6).

   OPTION A: installation using IDEGIS original cable, ref. NEO-020-XX (where XX is its length in meters).

   OPTION B: installation using the standard 6-wire signal cable, each having a minimum section of 0.22 mm^2.

   In both cases, the maximum permissible length is 40 meters. However, with a pair-twisted UTP cable (5e category, unshielded) a connection for distances up to 60 metres can be made.

4. To this end, pass the new communication cable (A) through the cable gland located at the base of the terminal and connect it to either of the two connectors on the visual-display board (CN1A, CN2A) **[OPTION A]**, or to the CN-5 connector **[OPTION B]**. Join the front visual display and the base of the terminal using the four screws supplied.

5. Pass the free end of the communication cable through the AUX 2 orifice at the bottom of the power supply (Figs. 8-8, 8-9) and connect it to the CN10A/CN11A connector **[OPTION A]** or to CN-20 **[OPTION B]** on the power board (Fig. 8-9). Replace the power supply chassis (Fig. 8-10).

6. Affix the wall support (see Section 9) at the chosen installation point and mount the terminal onto it.

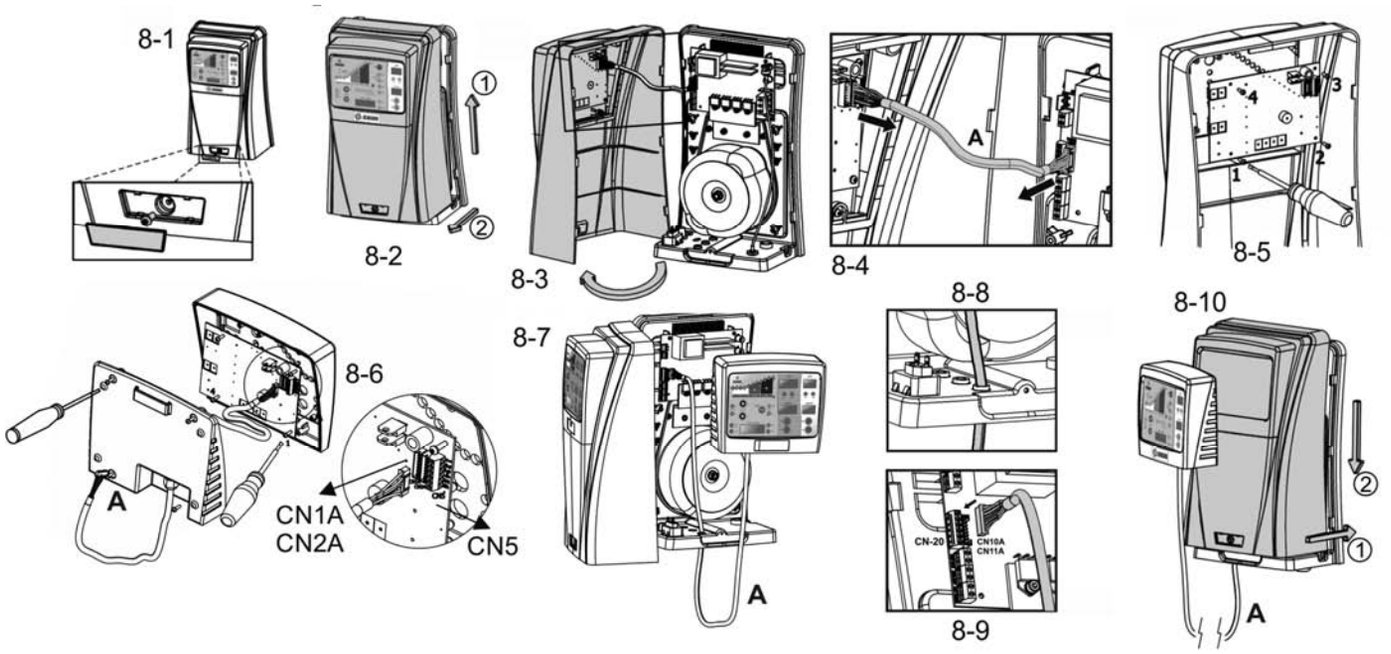
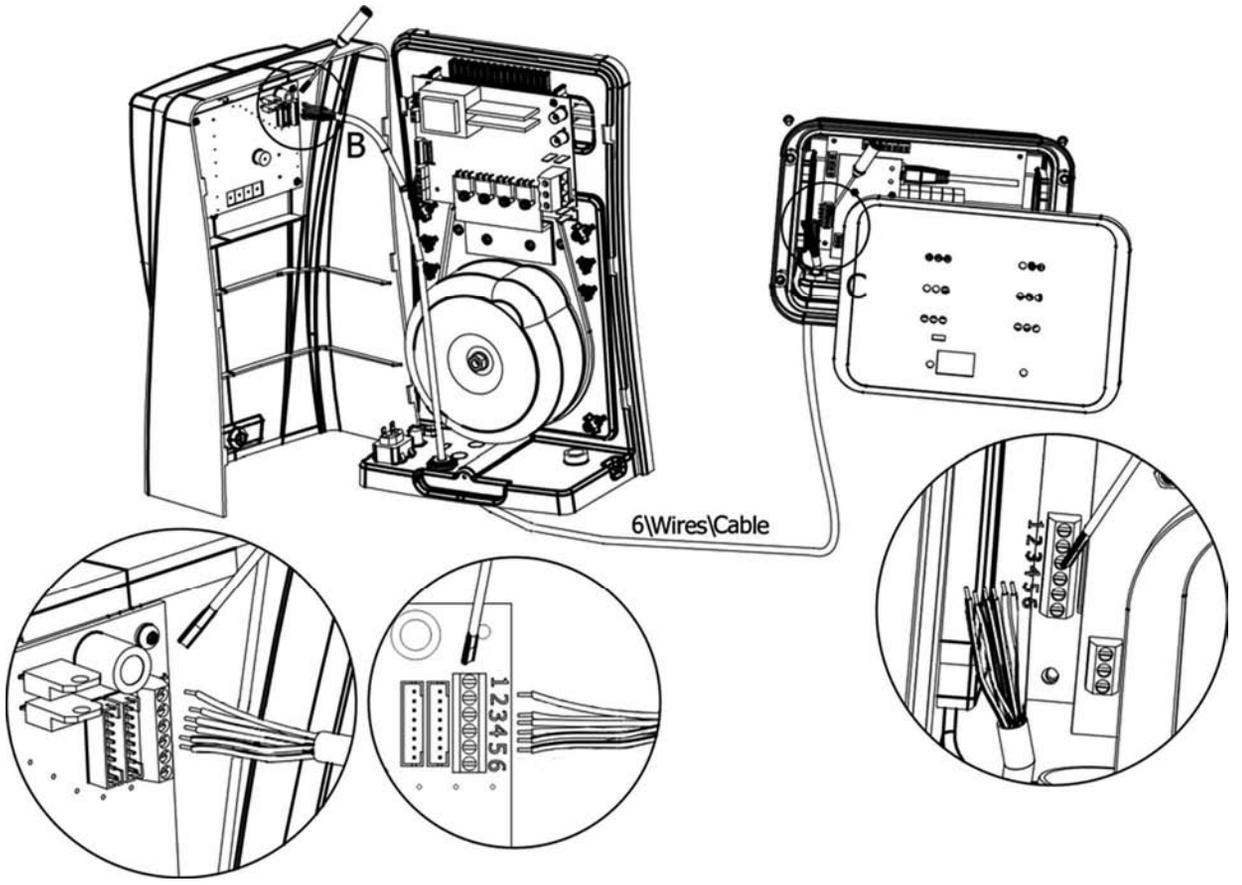


Fig.8

4.7. PoolStation Connection



4.8. 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 Neolysis® 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. Connect the UV system (UV lamp) using the switch located on the back panel of the unit. (see 4.3.1):

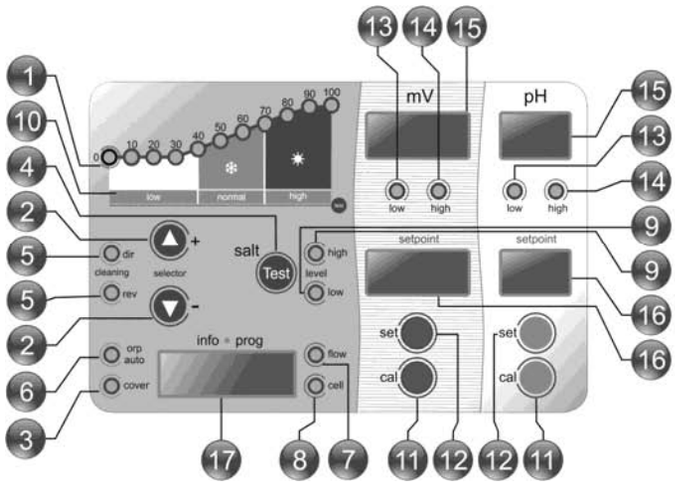
Remember

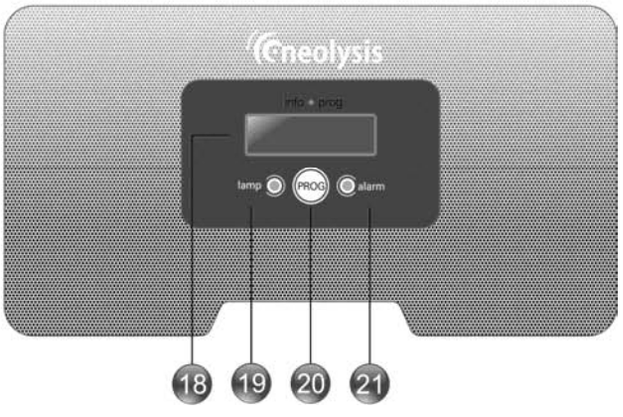
Always connect the unit to a circuit protected by an RCD.

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.

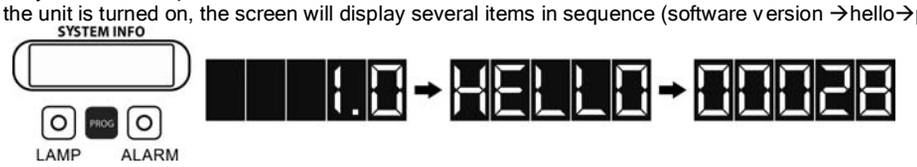
5. OPERATION:





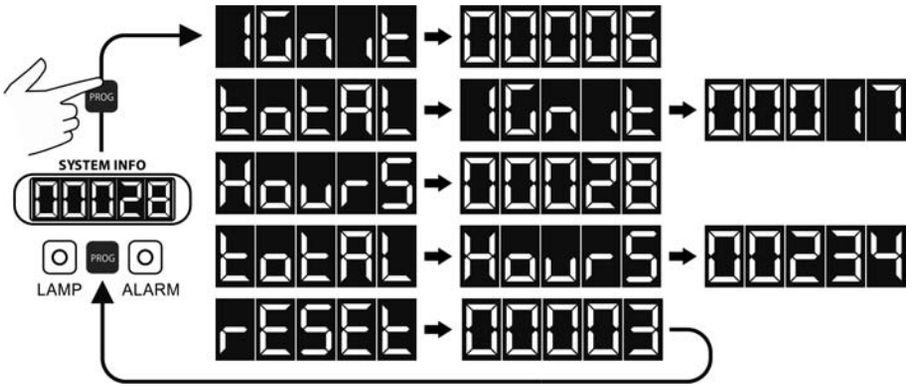
5.1. Neo System UV Lamp

The Neo system automatically turns the lamp on when the unit is switched on via the main ON/OFF switch, located on the rear control panel of the unit (see, 4.3.2 /8). 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):



IGNIT: The number of times that the lamp has been struck (ignited) (partial count). Can be reset to zero.

TOTAL IGNIT: Total number of lamp strikes (ignitions).

HOURS: Operating hours of the lamp (partial count, can be reset to zero).

TOTAL HOURS: Total operating hours of the unit

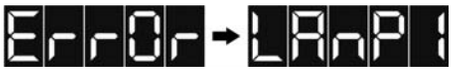
RESET: The number of times the counters have been reset. A reset simultaneously resets lamp strikes and lamp operating hours to zero

5.1.1. Alarms

When the system detects a problem in the UV lamp circuit, the alarm LED **[21]** on the unit's control panel will light.

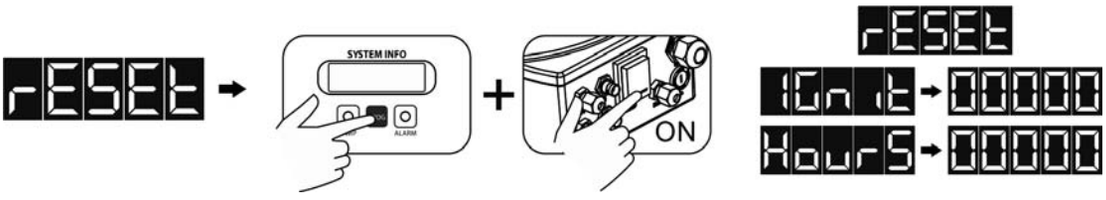
- **LAMP**

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



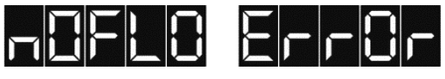
Remember

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 during system configuration a flow sensor is connected (flow switch connected to the hours/ignitions control board), the system will automatically disconnect the lamp when there is no flow. 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 connected to the hours/ignitions control board, the FLOW contact is closed by default)

The flow switch is connected to the UV lamp hours/ignitions control board as follows:

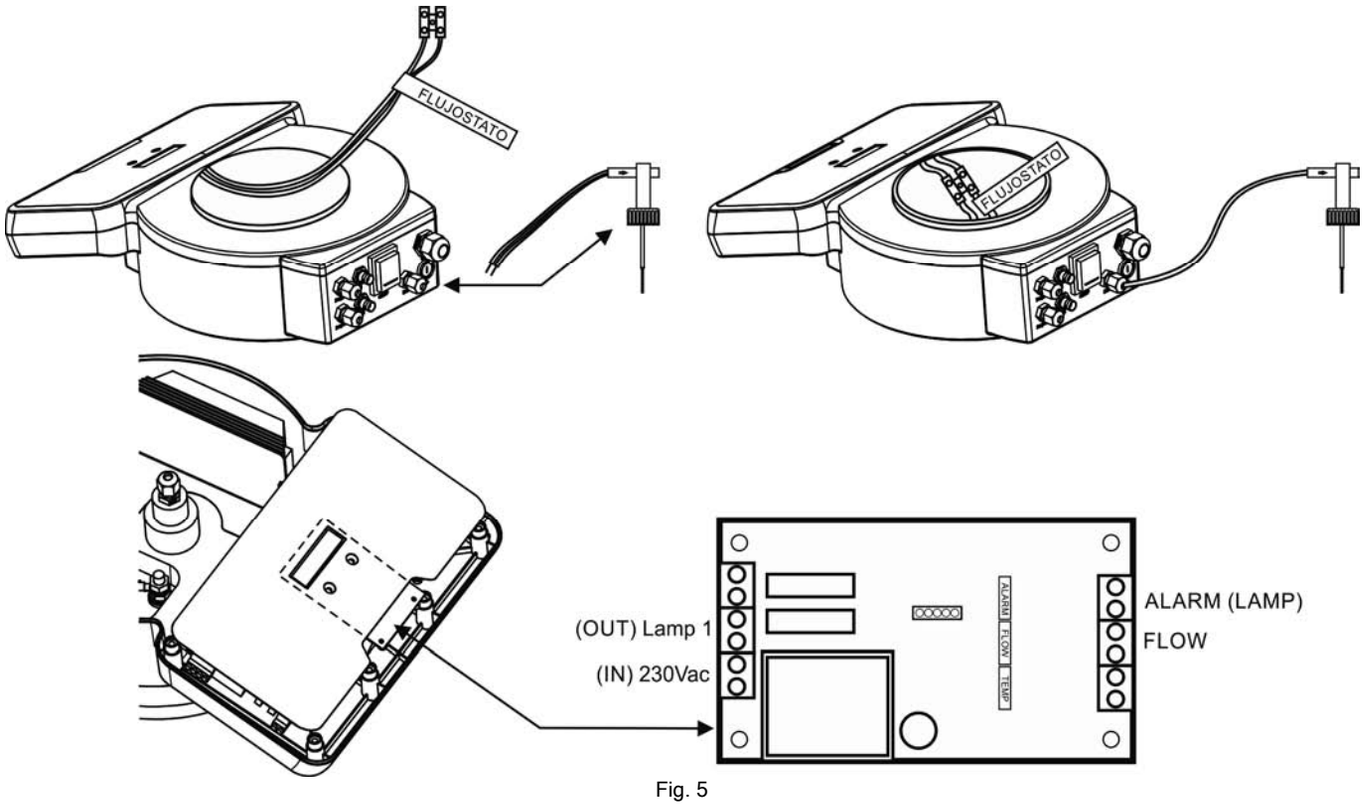
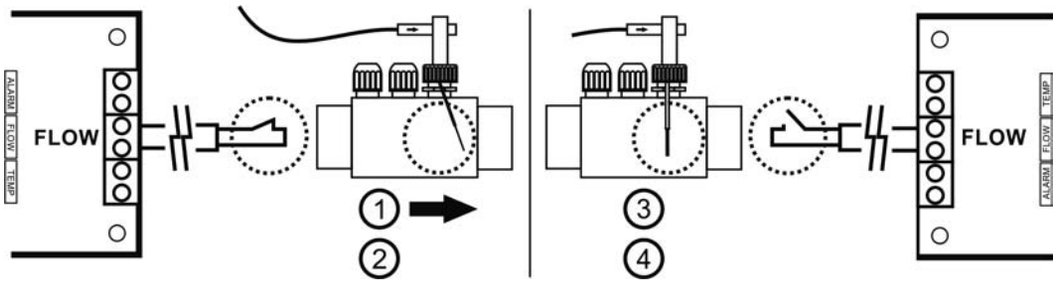


Fig. 5

When the 'FLOW' contact opens (flow sensor at rest, i.e. no flow), the system disconnects the lamp and displays an error message (noflo - error), and will reactivate automatically when the 'FLO' contact closes (flow sensor inclined, i.e. there is flow):



1) Flow.
2) FLOW contact closed:
Operative.

3) No Flow
4) FLOW contact open:
Lamp disconnected
Alarm (ErrOr or nOFLO)

Fig. 6

5.2. Electrolysis System

5.2.0 System Stopped

The system is in 'WAIT' mode when the**"▼" [2]** key is successively pressed until the **'0%'** LED is flashing. In this state, there is no production in the electrolysis cell.

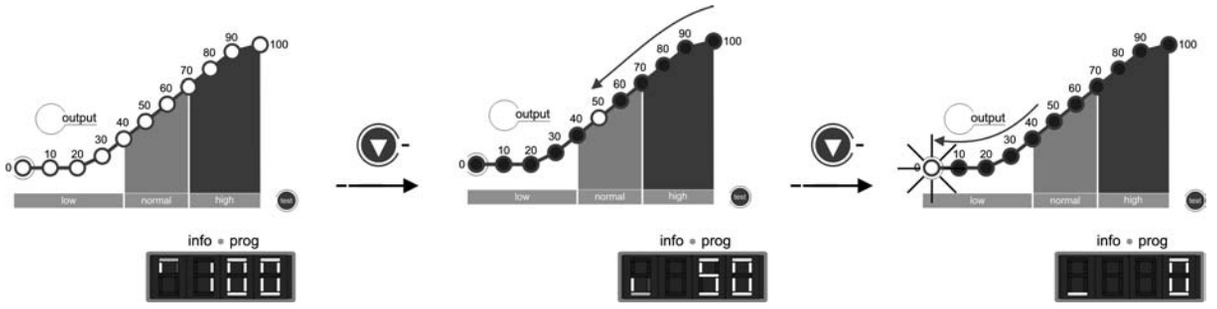


Fig. 9

5.2.1 System Configuration

The NEO series system can be reconfigured through a menu accessible from the control panel. To access this menu, it is necessary to have previously stopped the system, as described in section 5.2. Once the system has stopped, press the'▼' **[2]** key for a few seconds until the system information screen **[17]** displays the word **'CONF'.** To enable the selection of each one of the options in each menu, keep the **'SALT TEST' [4]** key pressed for approximately 1 second**.** Once the required parameter has been selected by using the **'▼' [2] / '▲' [2]** keys, validate by keeping the **'SALT TEST' [4]** key pressed again for approximately 1 second (see Fig. 11)**.** The configuration processes allow the following system operating parameters to be established:

MODEL

NEO 12 NEO 24 NEO 32

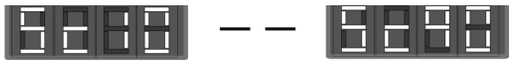
SOFTWARE VERSION

It indicates the software version using two digits.

POLARITY INVERSION

Inversion every 2 hours [2] Inversion every 3 hours Inversion every 2 minutes [1]

OUTPUT LEVEL ADJUSTMENT WITH THE COVER CLOSED



[2]

The system may be configured to provide an output to the cell in the range of 10 ... 90% of its nominal capacity, when the cover of the swimming pool is closed.

COVER CONTROL INPUT ACTIVATION

Deactivated Input activated with closed contact [2] Input activated with open contact.

RESIDUAL ORP/CHLORINE CONTROL INPUT ACTIVATION

Deactivated (MANUAL) [2] System activated with closed contact (AUTO) [3]

GAS DETECTOR ACTIVATION

Deactivated System activated with detector submerged [2]

EXTERNAL FLOW SENSOR ACTIVATION (FLOW SWITCH)

Deactivated [2] System activated with closed contact

[1] **WARNING:** use this mode exclusively for verification tasks and for short periods of time only, as it may damage the electrodes. The system automatically exits this mode following disconnection.
[2] Factory-set default values.
[3] Factory-set default values for NEO-XX PLUS equipment.

Fig. 10

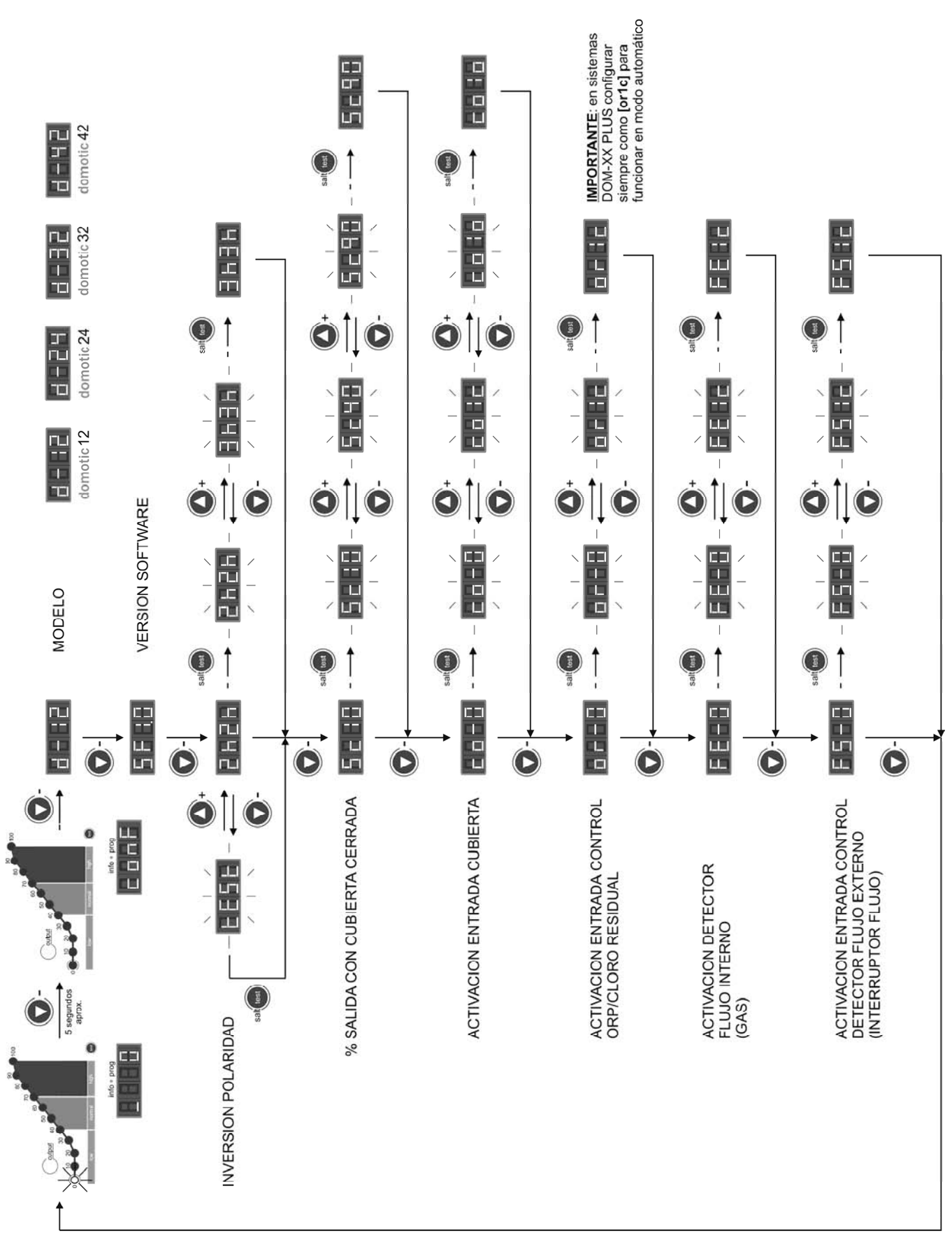


Fig. 11 System programming flow chart.

5.2.2 Production Selection

To select the required production level, successively press the **'▼' [2] / '▲' [2]** keys until the LED corresponding to the required production level is flashing. The system information screen **[17]** will display the value corresponding to scale of production LED **[1].** After a few seconds, the system will set its production to the selected level.

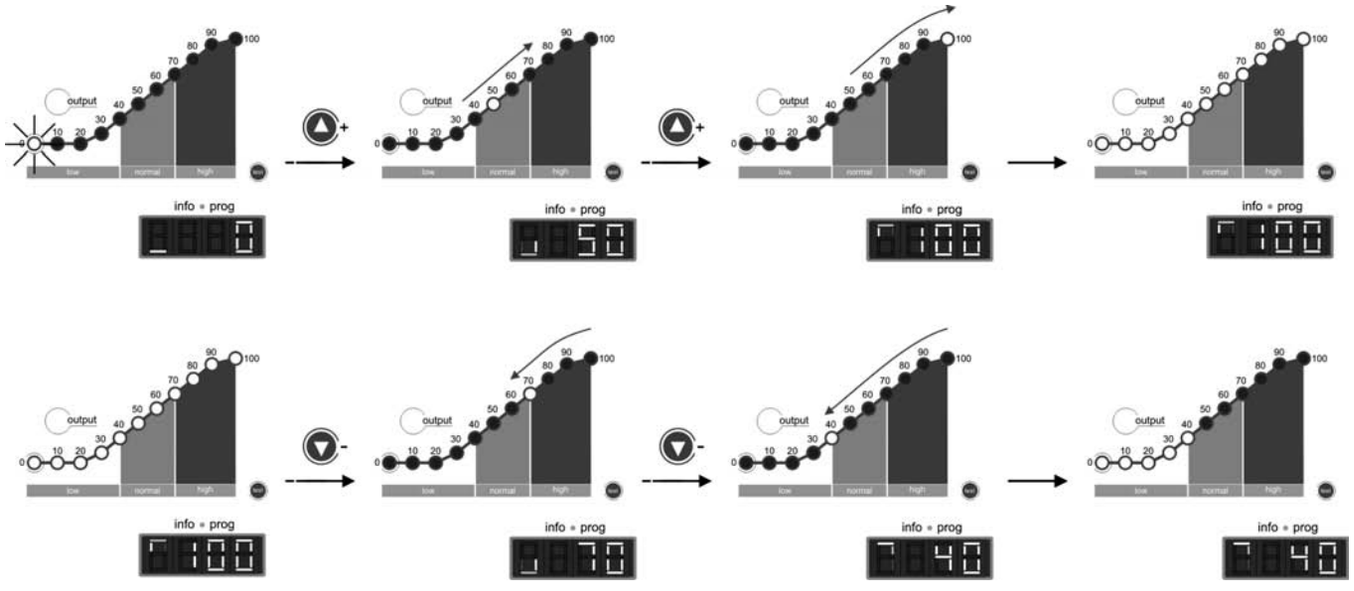
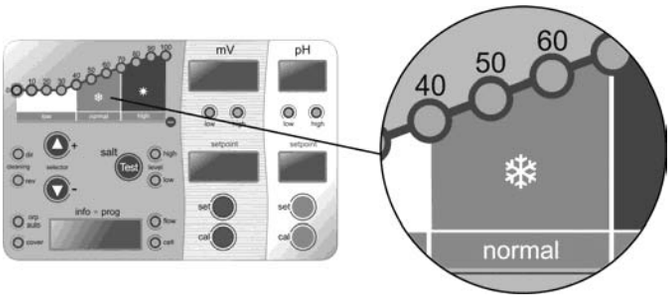


Fig. 12

Under normal circumstances, the production value **[1]** shall coincide with the programmed value **[17]**. However, if there are saline levels in the water outside the range (**'HIGH SALT'** or **'LOW SALT' [9]** alarms activated), or if there is a problem in the electrolysis cell (**'CELL' [8]** alarm activated), the production value reached **[1]** may be below the value programmed and displayed on the screen **[17]**.

WINTER Mode: during periods of low water temperature, select a level of production **[10]** between 50-60%.



5.2.3 Salinity Test

The NEO Series systems have an integrated system to detect the level of salinity in the swimming pool. To carry out this test, press the **'SALT TEST' [4]** key. When performing this test, the production indication LED oscillates between the 20%-80% range on the salinity scale **[10]**, displaying alternatively the text **'SALT'** and **'TEST'** on the system information screen **[17].** Once the test is finalised, the LED will flash for a few seconds on the scale **[1]**, above the saline value detected (see Fig. 13). After a few seconds, the equipment will return to the normal operating mode.

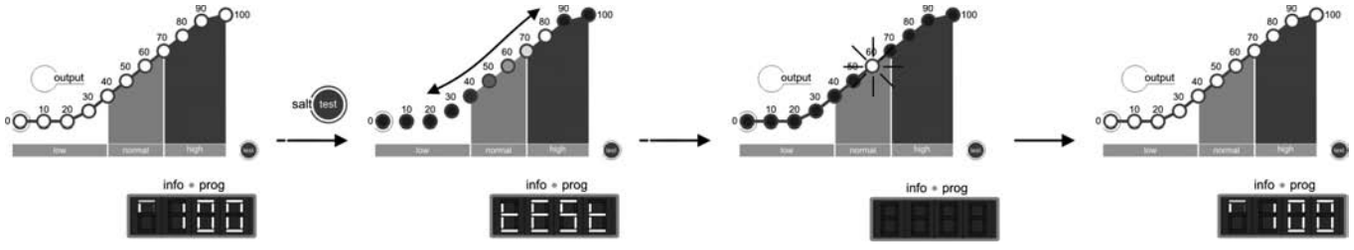


Fig. 13

The system might indicate salt levels below actual levels if the water temperature is below 20°C.

This test is invalid when the system is stopped by ORP or flow.

5.2.4 Integrated pH/ORP Controller (NEO-XX PH y NEO-XX + models)

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

SET-POINT **pH="7.2" / ORP="750 mV"**

PLEASE NOTE: To achieve proper pH regulation, ensure that the alkalinity of the water is within the optimum range recommended, 60-120 ppm $CaCO_3$. Use a test kit to measure the Total Alkalinity of the water, and correct it manually if necessary.

PH / ORP PROBE CONNECTION (NEO-XX PH y NEO-XX + models)
Connect the pH and ORP sensors supplied with the unit to the corresponding BNC connectors, located at the base of the unit (Fig. 14).

DOSING PUMP CONNECTION
The NEO Series systems (NEO-XX PH y NEO-XX + models) have a terminal at their base to connect a dosing pump, to control the pH of the swimming pool water. The dosing pump can be connected to the equipment using the CEE22 connector supplied (Fig. 14).

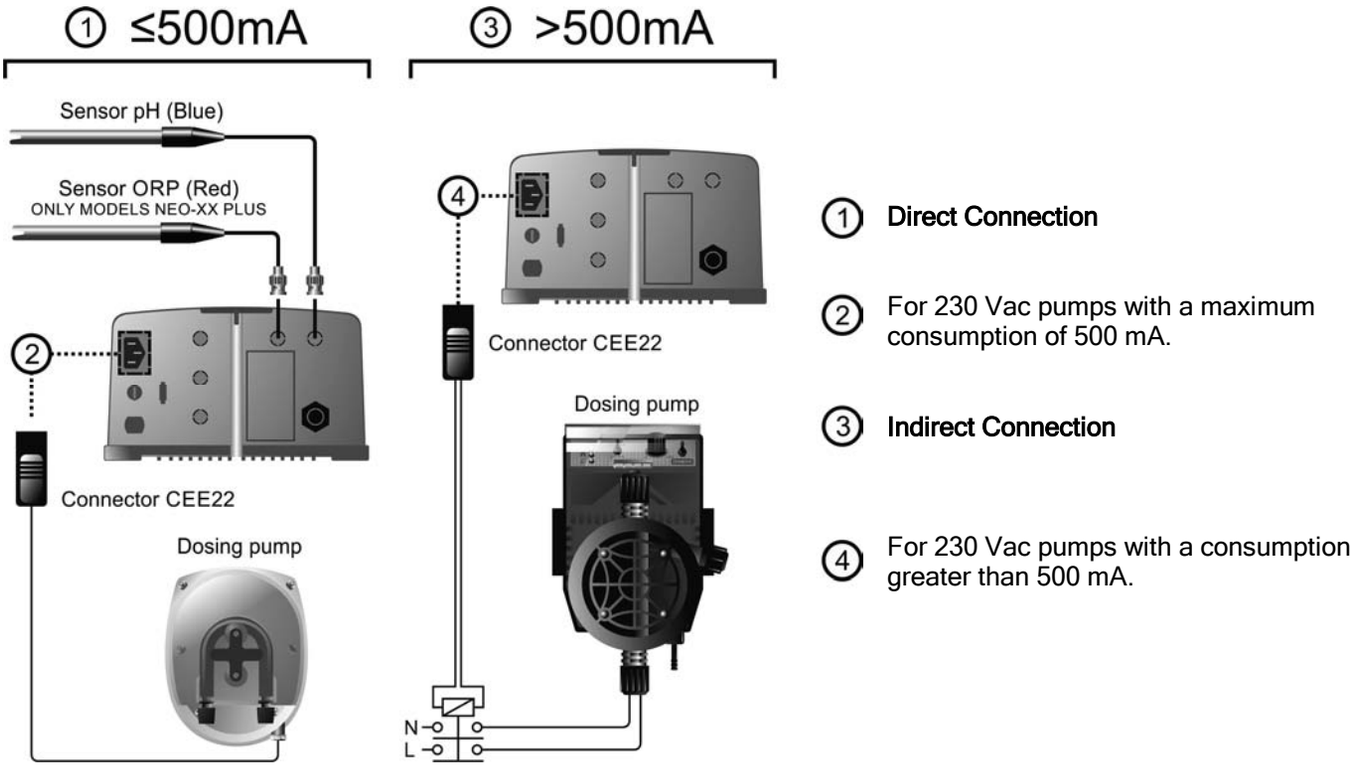


Fig. 14

5.2.5 Programming the Desired pH Value

Keep the **'SET' [12]** key pressed until the screen **[16]** displays the desired pH value, within the 7.0 - 7.8 range. Release the key when the value is correct.

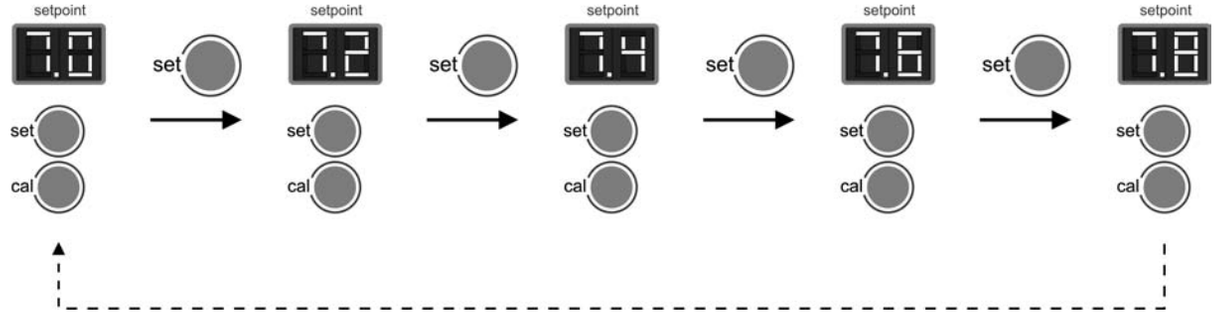


Fig. 15

5.2.6 Programming the Desired ORP Value (only in NEO-XX + models)

Keep the **'SET' [12]** key pressed until the screen displays the desired ORP value, within the 600 -850 mV range. Release the key when the value is correct.

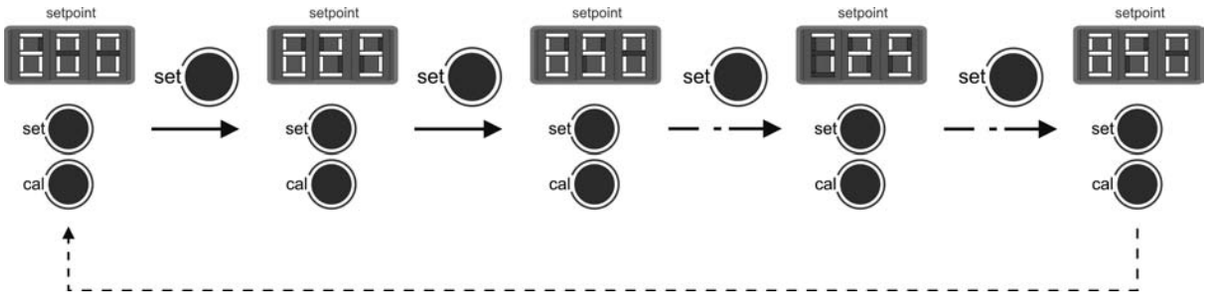


Fig. 15b

5.2.7 Dosing Pump Emergency Stop Configuration (PUMP STOP Function)

Every integrated pH controller is fitted with a safety system (PUMP-STOP FUNCTION) that works on the dosing pump to prevent the following situations:

- Damage to the pump when running under vacuum (pH minus product unavailable).
- pH reducer product overdosing (damaged or worn-out sensor).
- Problems with pH regulation due to high levels of water alkalinity (filling the pool, high levels of carbonate).

When the PUMP-STOP FUNCTION is activated (configured by default), the system will stop the dosing pump after the programmed time, before reaching the set pH value.

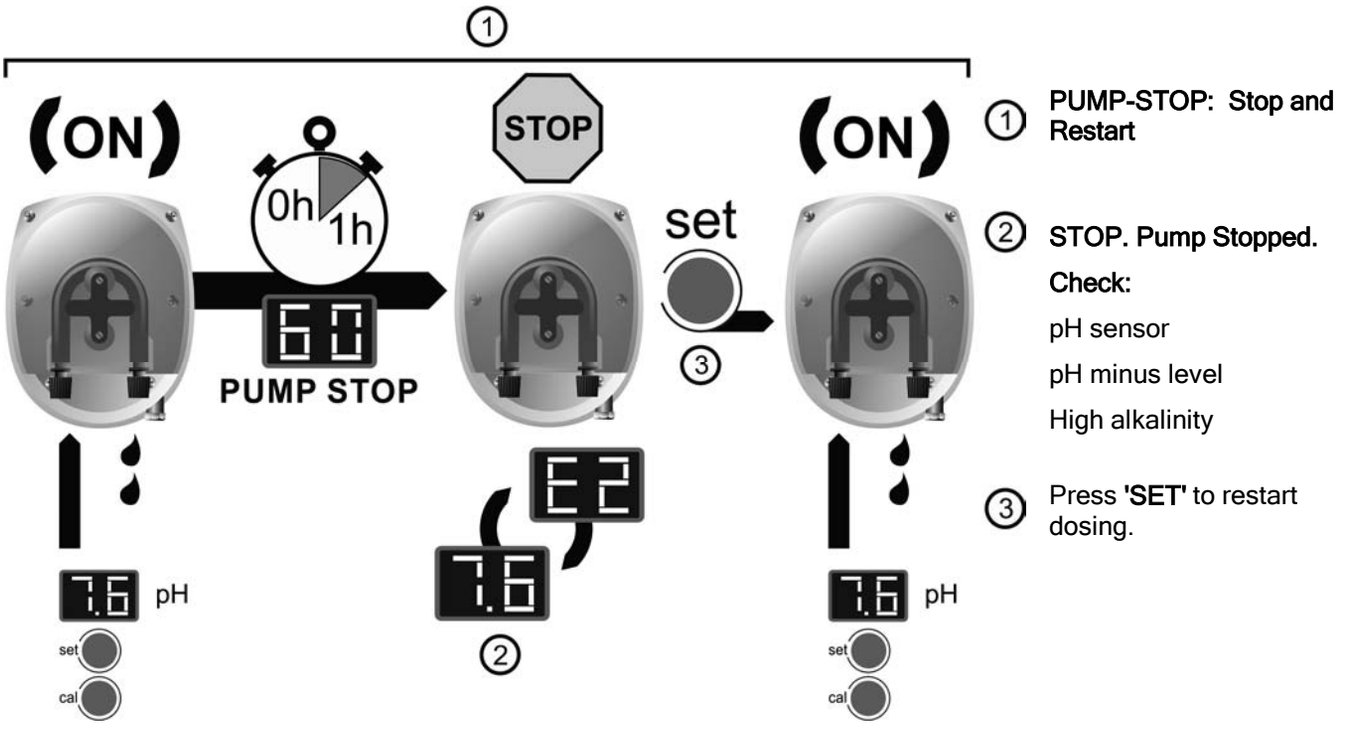
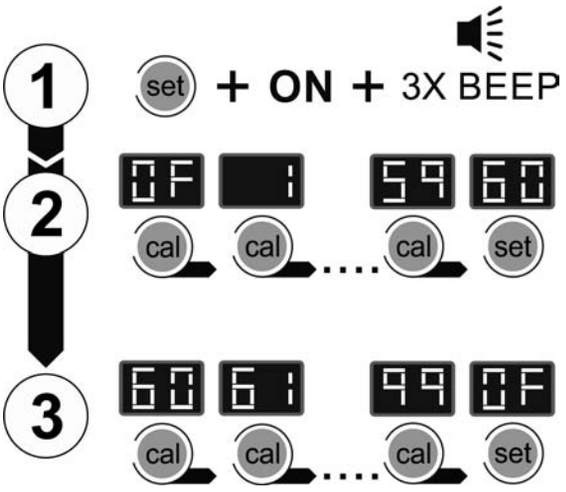


Fig. 15c.

The factory default for the PUMP-STOP FUNCTION is 60 MINUTES. To change this value, shown on the display '15', carry out the following procedure:



Enter menu (Equipment previously switched off):

Hold down SET + Turn on unit + 3 'beeps' + release SET

Activate the function by pressing 'CAL' until the required value is shown, and confirm by pressing 'SET'

Safety stop configured at 60 minutes.

If after 60 minutes of continual dosing

the Set-point is not reached, activate pH safety stop.

Restart by pressing 'SET'.

Deactivate the function by pressing 'CAL' until 'OF' and confirm by pressing 'SET'.

pH safety stop deactivated (OF). Not operating.

Fig. 15d.

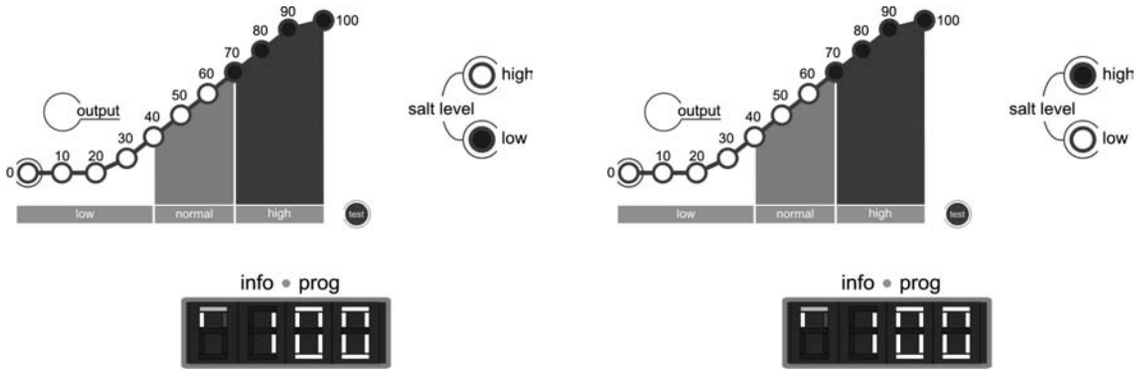
6. Alarms:

- HIGH SALT LEVEL

  If excess salt has been added, the power supply will automatically reduce the production level with respect to the selected value. The **'HIGH SALT' [9]** LED will remain on. If this is the case, empty some of the water from the swimming pool (for example 10%) and replace it with fresh water to reduce the salt concentration. For precise measure of the salt level, we recommend using a potable salinity-temperature meter.

- LOW SALT LEVEL

  If the level of salt in the swimming pool water is lower than recommended, the power supply will not be able to reach the chosen output level. The **'LOW SALT' [9]** LED will remain on. If this is the case, determine the water salinity level and add the necessary quantity of salt. The type of common salt (NaCl) required for electrolysis should not contain any additives (anti-caking agents, iodides) and must be suitable for human consumption. It is possible that the system will indicate low salt levels if the water temperature is below 20°C. For precise measure of the salt level, we recommend using a potable salinity-temperature meter.

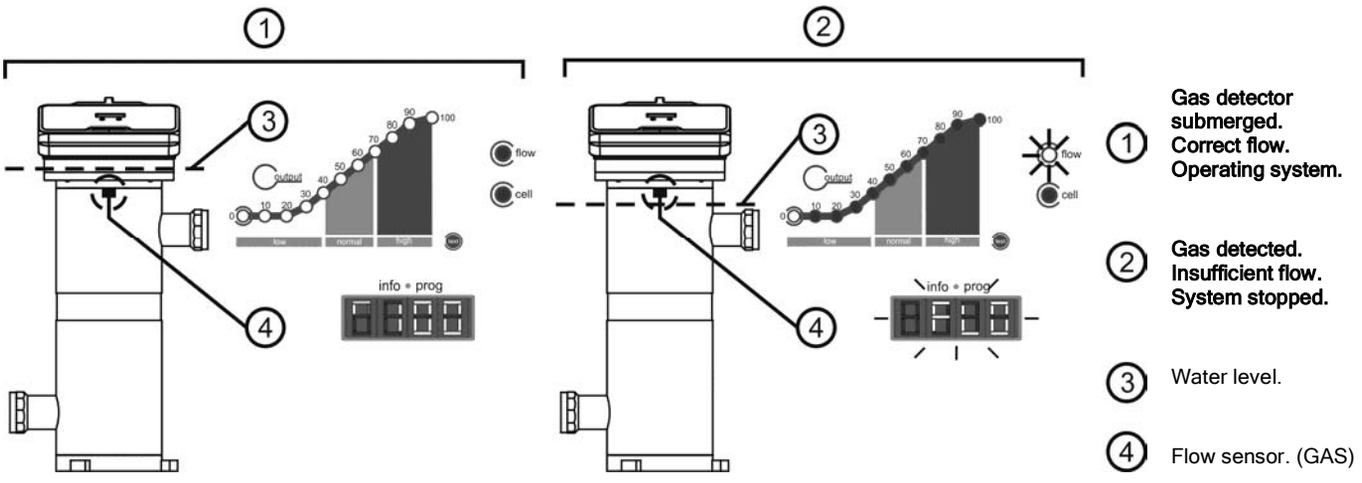


High salt level Low salt level

Fig. 16

- **WATER LEVEL IN THE CELL / FLOW SENSOR (GAS)**

  If, at any given time, a bubble of air or gas forms in the upper part of the electrolysis cell and the FLOW SENSOR is not submerged, the system will automatically disconnect production. The **'FLOW'** LED **[7]** will flash and the message **'FLO'** appears on the system information screen **[17]**. The system will reactivate automatically when the water flow through the cell is restored or the bubble has been expelled.

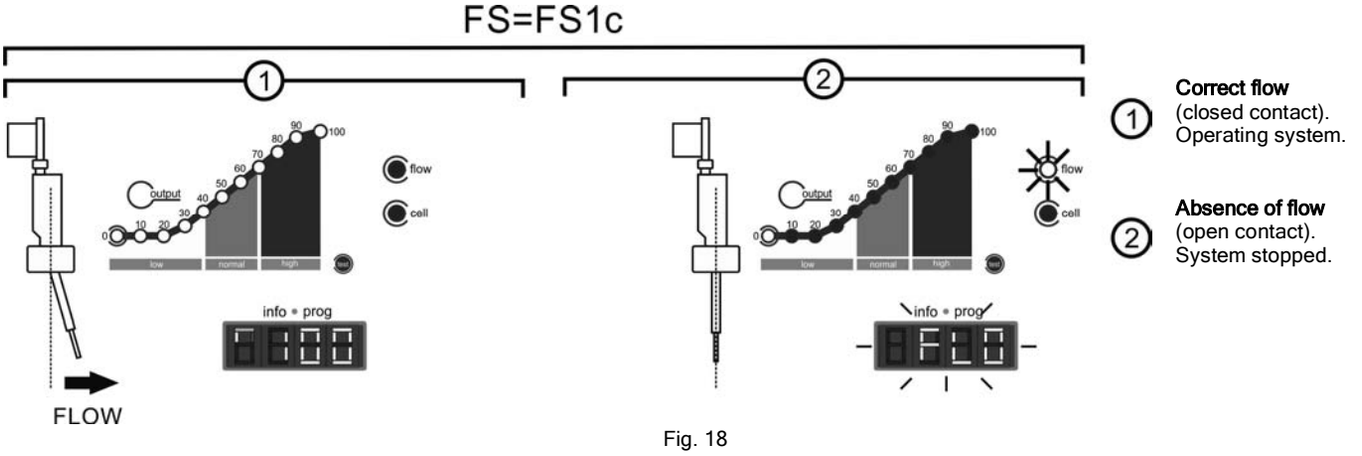


1. **Gas detector submerged. Correct flow. Operating system.**
2. **Gas detected. Insufficient flow. System stopped.**
3. Water level.
4. Flow sensor. (GAS)

Fig. 17

- **OPTIONAL EXTERNAL FLOW SENSOR / FLOW SWITCH (not supplied with the equipment)**

If, during the system configuration process (Section 4.5, power supply flow switch configuration), the external flow switch input is activated, the system will automatically disconnect production. The **'FLOW'** LED **[7]** will flash and the message **'FLO'** appears on the system information screen **[17]**. The system will reactivate automatically when the water flow has been restored through the flow switch.



1. **Correct flow** (closed contact). Operating system.
2. **Absence of flow** (open contact). System stopped.

Fig. 18

Note: if only one flow switch is installed, it is recommended to use it to control the UV lamp. We avoid high temperatures in the reactor if there is no flow (See 5.1.1 UV Flow Switch Installation).

- **ELECTRODES**

The Neolysis® Series system has a malfunction indication LED on the electrolysis cell electrodes **[8]**. This malfunction is normally due to the electrode passivation process, occurring once they have reached the end of their useful life. However, and despite being a self-cleaning system, this malfunction may be the result of the formation of excessive incrustations on the electrodes, when the system operates in very hard waters and with high pH values.

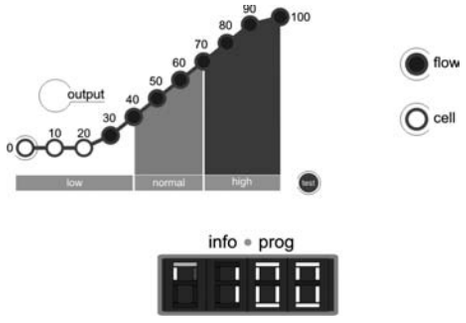


Fig. 18A

- **OPERATING TIME (firmware version 3.3.0 and later):** Electrode operating hours information

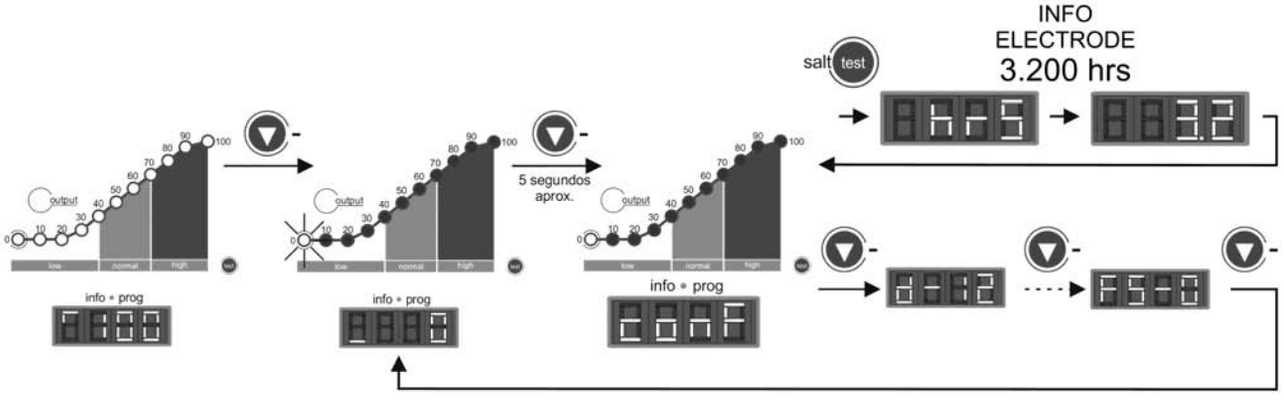


Fig. 18B

- **PH / ORP VALUE OUT OF RANGE (only in NEO-XX PH y NEO-XX + models)**

The integrated pH/ORP controller has two ALARM LEDs that light whenever an anomalous pH reading is received, below 6.5 **'LOW' [13]** or above 8.5 **'HIGH' [14]**, or if the ORP reading is outside the range 600 mV **'LOW' [13]** - 850 mV **'HIGH' [14]**. When the regulator detects an active pH alarm, it opens the dosing pump control output (pH), stopping its operation.

7. MAINTENANCE :

7.1. Electrolysis Cell Maintenance

The cell should be maintained in suitable conditions to ensure long-lasting operation. The saline electrolysis system has an automatic electrode cleaning system to avoid the build up of lime scale on the electrodes; therefore, it should not be necessary to clean them. However, if it does become necessary to clean the interior of the cell, proceed as follows:

1. Disconnect the 230 Vac power supply from the equipment.
2. Unscrew the retaining nut situated at the end where the electrodes are located, and remove the packet of electrodes.
3. Use a diluted hydrochloric acid solution (one part of acid in 10 parts of water), submerging the packet of electrodes in this solution for a maximum duration of 10 minutes.
4. NEVER SCRAPE OR BRUSH THE CELL OR THE ELECTRODES.

The saline electrolysis system electrodes consist of titanium strips covered by a coating of noble metal oxides. The electrolysis processes that occur on their surface cause their progressive wear; therefore, to increase their useful life, the following points should be taken into account:

1. Even though Neolysis® saline electrolysis systems are SELF-CLEANING, prolonged operation of the system at pH values over 7.6 in hard waters may produce an accumulation of lime scale on the surface of the electrodes. These deposits progressively deteriorate the coating, causing a reduction in their useful life.
2. Frequent cleaning/washing of the electrodes (as described above) will shorten their useful life.
3. Prolonged operation of the system in waters with salinity below 0.5 g/L will cause a premature deterioration of the electrodes.
4. Frequent use of algaecide products with a high copper content may create copper deposits on the electrodes, progressively damaging the coating. Remember that the best algaecide is chlorine.

7.1.2. Calibrating the pH Sensor (only in NEO-XX PH and NEO-XX + models)

The integrated pH controller has two methods for calibrating the pH sensor: 'FAST' and 'STANDARD'. It is recommended to carry out a calibration of the pH sensor at least once a month.

1. 'FAST' METHOD

The 'FAST' method allows routine recalibration of the sensor when there are small errors in calibration, **without requiring the sensor to be removed nor the use of calibration solutions**.

PROCEDURE:

1. Ensure that the sensor 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 **[11]** for approximately 5 sec. until the equipment beeps, and then release. The screen indicating the programmed pH value **[16]** will display **'7.0'** flashing.
4. Keep the **'SET'** key **[12]** pressed until the display shows the pH value previously measured in the water with the pH kit. When the correct value is displayed, release and press the **'CAL'** key **[11]**. If no errors are detected, the system will be correctly recalibrated.

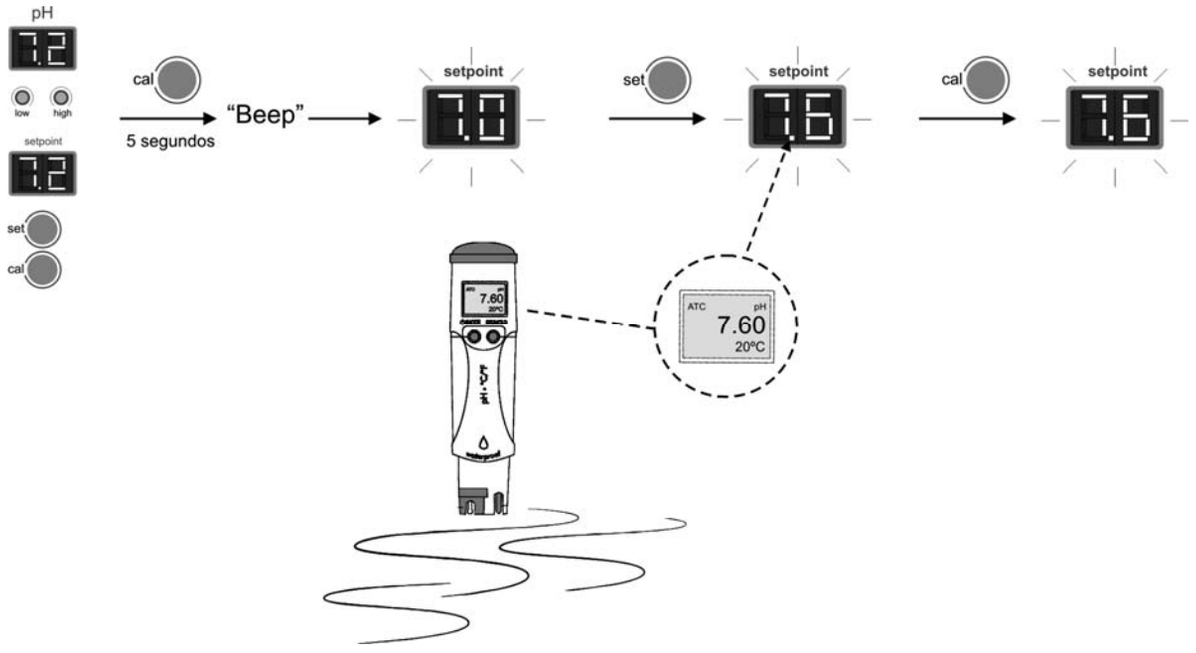


Fig. 19

2. THE 'STANDARD' METHOD

'STANDARD' calibration allows precise calibration of the sensor using two calibration solutions with pH 7.0 and pH 4.0. However, this requires that the sensor be removed from the installation.

PROCEDURE:

NOTE: before continuing, close the by-pass valves and stop the system as described in section 5.2.

1. Remove the sensor from the probe holder and rinse it in an abundance of water.

Fig. 20

2. Press the **'CAL'** key **[11]** for approximately 5 seconds until the equipment beeps and then, without releasing it, press the **'SET'** key **[12]** for a few seconds, until the screen indicating the pH value **[15]** shows **'7.0'** flashing.
3. Shake the sensor gently to remove any drops of water on it, then insert it into the pH 7.0 calibration solution (green). Stir it around in the solution for a few seconds; then, press the **'CAL'** key **[11].** Once the reading has stabilised, the screen **[15]** will be flashing **'4.0'**.

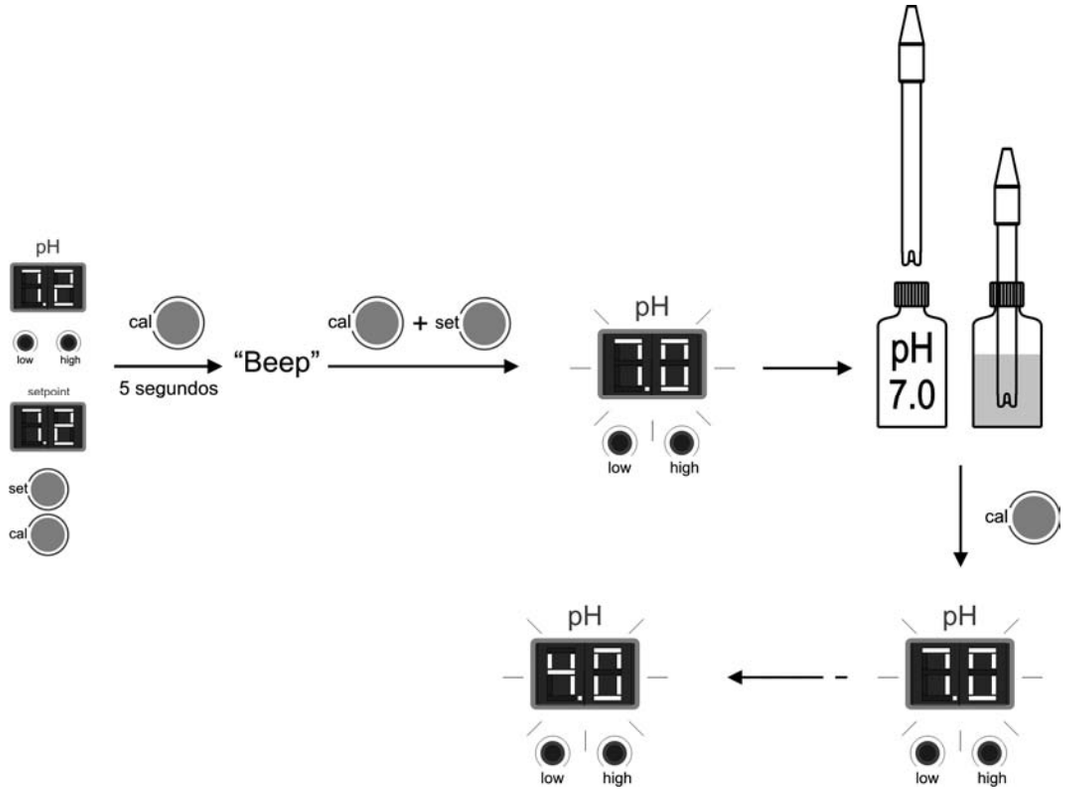


Fig. 21

4. Take the sensor out of the calibration solution and rinse it in an abundance of water.
5. Shake the sensor gently to remove any drops of water on it, then insert it into the pH 4.0 calibration solution (red). Stir it around in the solution for a few seconds; then, press the 'CAL' key **[11].** Once the reading has stabilised, the controller will automatically exit the calibration mode and become operative.

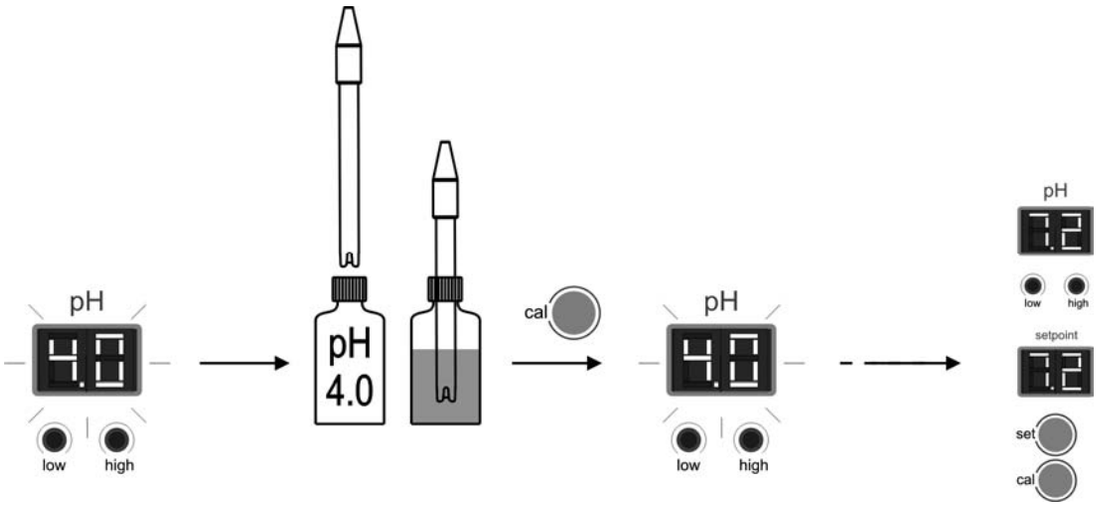


Fig. 22

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 screen **[15]**.

If the pH value detected during calibration differs greatly from the expected one (e.g., faulty probe, etc.), **'E2'** will appear on the screen **[15]** and calibration will not be allowed.

If the pH measurement is unstable during the calibration process, the code **'E3'** will appear on the screen **[15]**. In this case, the sensor calibration will not be allowed either.

3. Calibrating the ORP sensor (only in NEO-XX PLUS models)

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

PROCEDURE:

PLEASE NOTE: before closing the by-pass valves, disconnect the system from the control panel (see Section 5.2).

1. Remove the sensor from the probe holder and rinse it in an abundance of water.

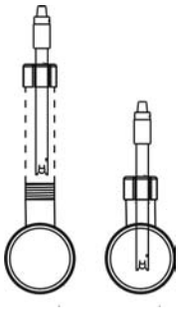


Fig. 23

2. Press the **'CAL'** key **[11]** for a few seconds until the screen indicating the ORP value **[15]** flashes showing **'470'**.

3. Shake the sensor 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 the **'CAL'** key **[11]**. If the calibration process is completed successfully, a long beep will be heard, and the controller will be calibrated and ready for operation.

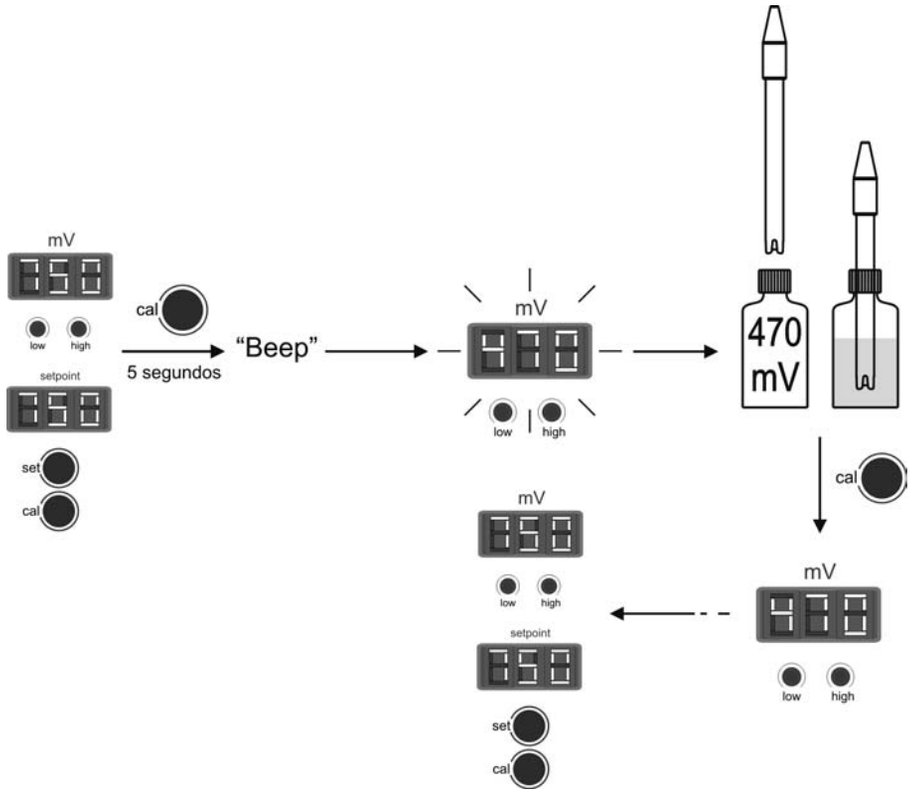
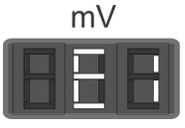
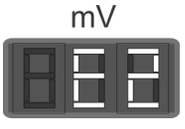


Fig. 24

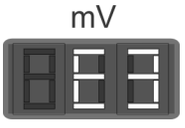
ERROR MESSAGES:



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 screen **[15]**.



If the ORP value detected during calibration differs greatly from the expected one (e.g., faulty sensor, etc.), **'E2'** will appear on the screen **[15]** and calibration will not be allowed.

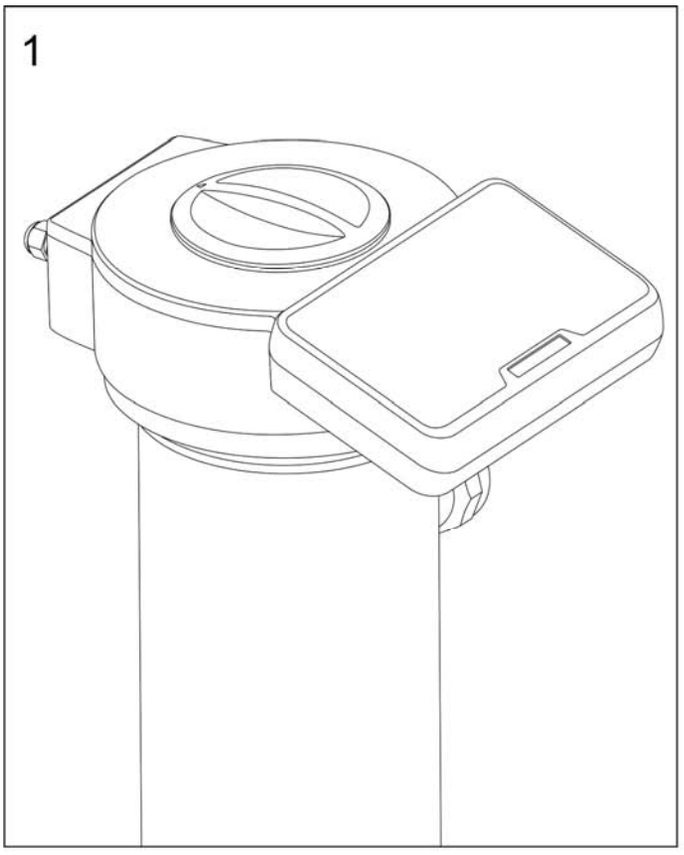


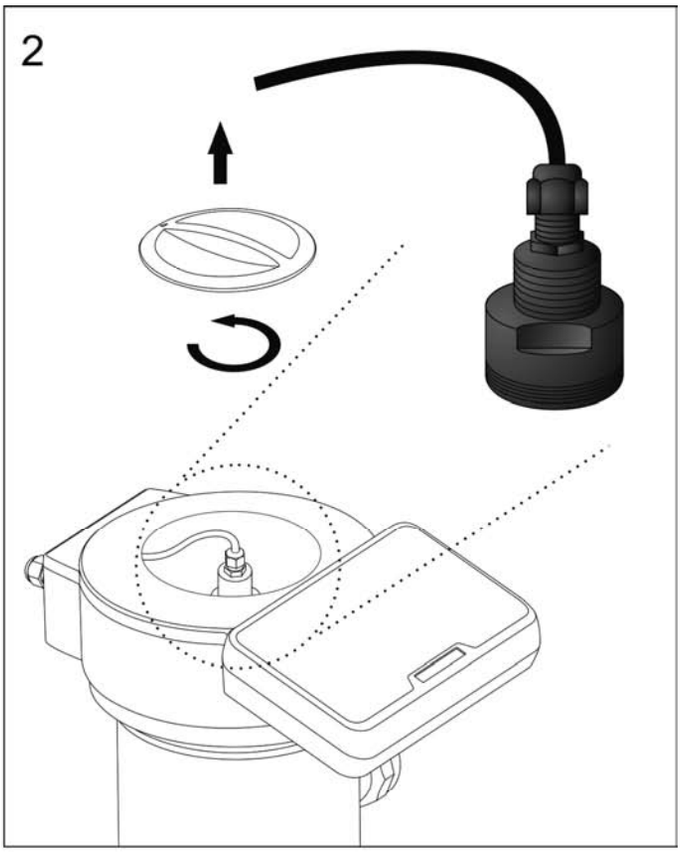
If the ORP measurement is unstable during the calibration process, the code **'E3'** will appear on the screen **[15]**. In this case, the sensor calibration will not be allowed either.

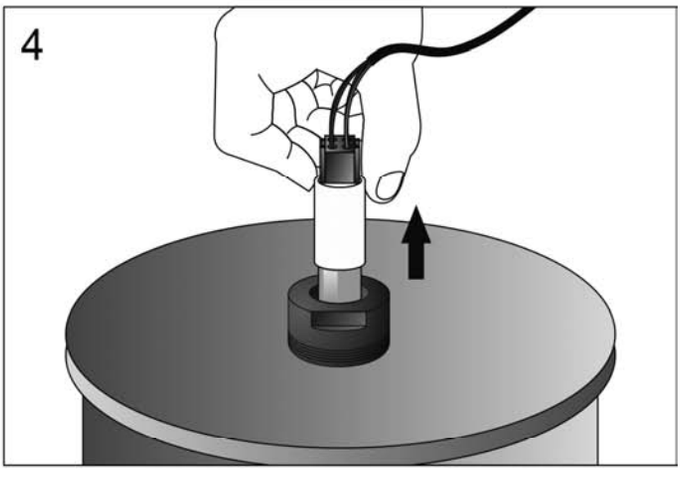
Maintenance of the pH/ORP Sensors

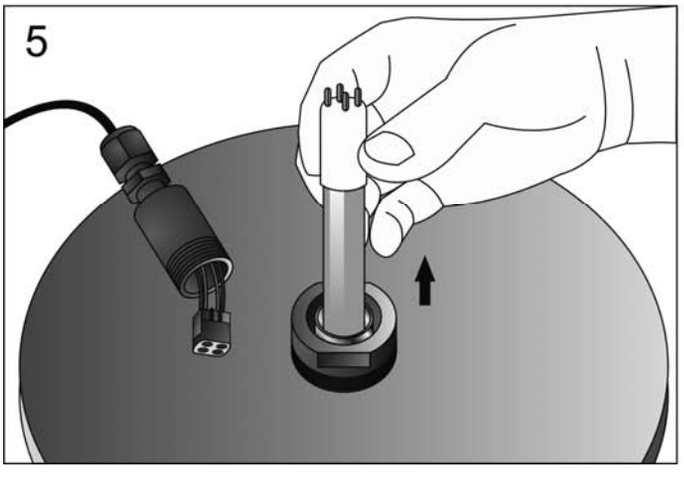
1. Ensure that the sensor membrane is always damp.
2. If a sensor will not be used for an extended period of time, store it in a protective pH 4.0 solution.
3. To clean a sensor, do not use abrasives that could score its surface.
4. **pH/ORP sensors are consumable items that must be replaced after a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

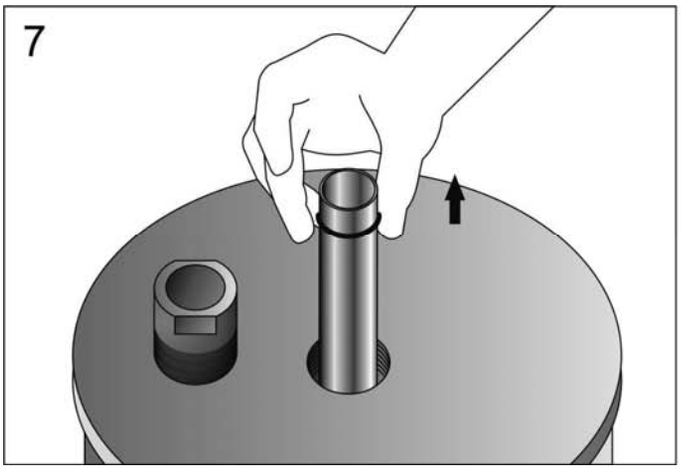
7.1.3. REPLACEMENT AND CLEANING OF THE QUARTZ HOUSING OR U.V. LAMP / UNINSTALL

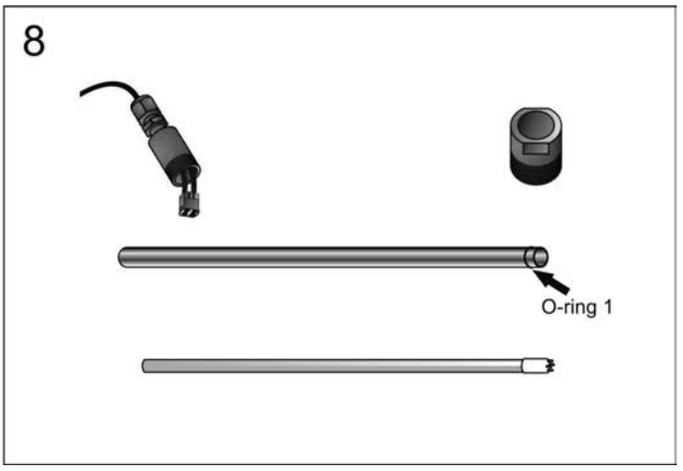




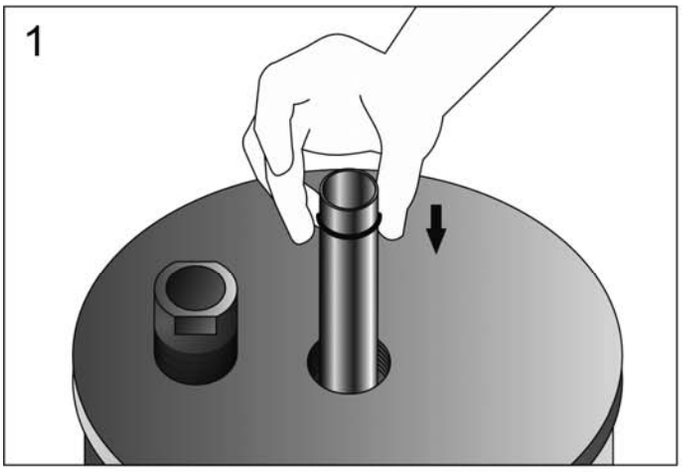


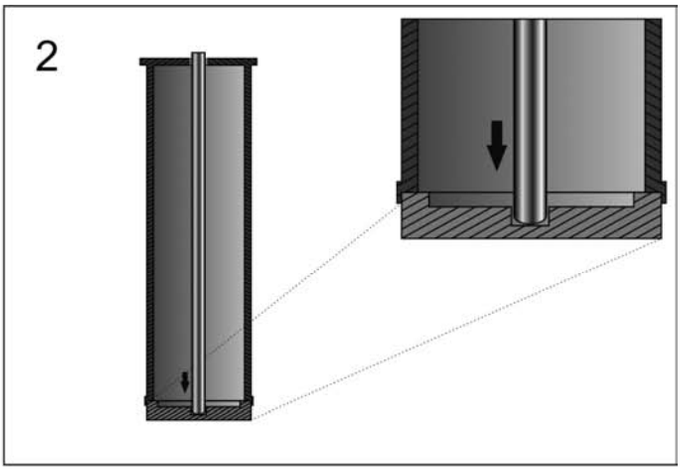


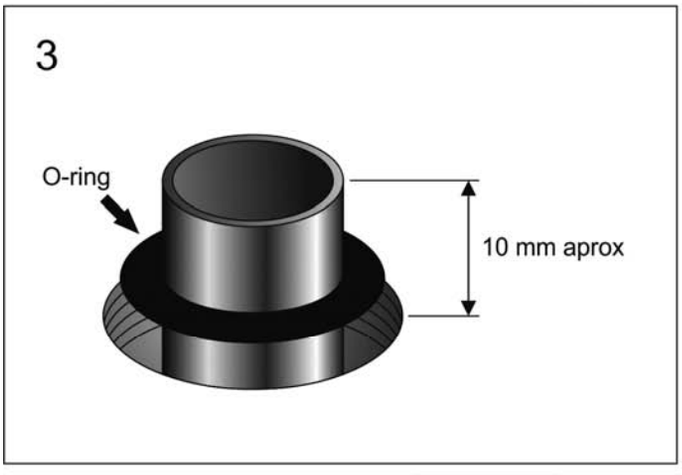

7

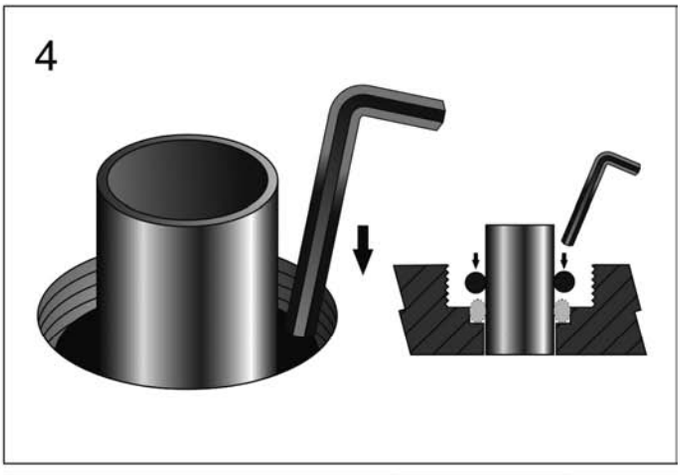

8
O-ring 1

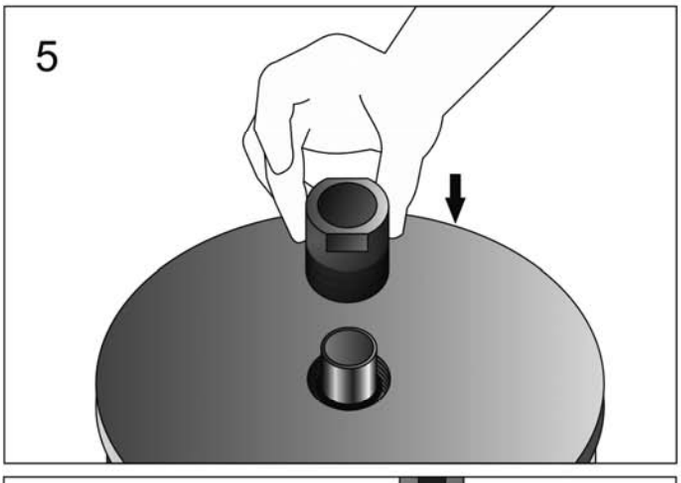
INSTALL

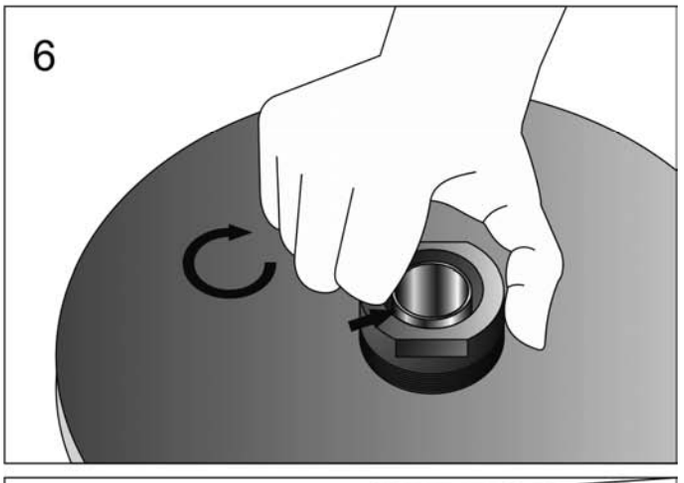


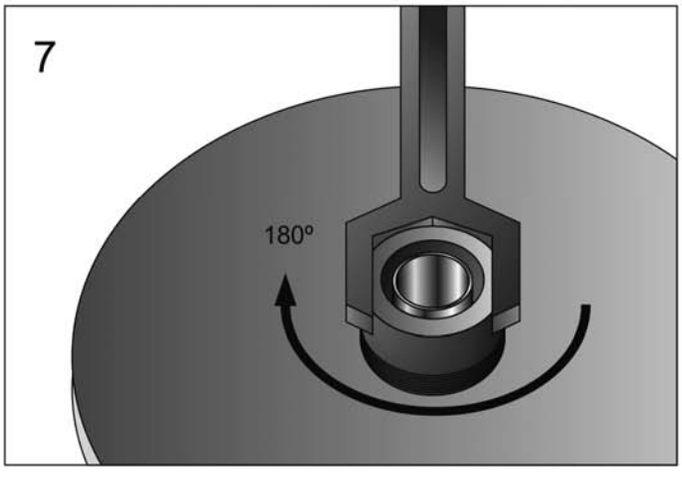


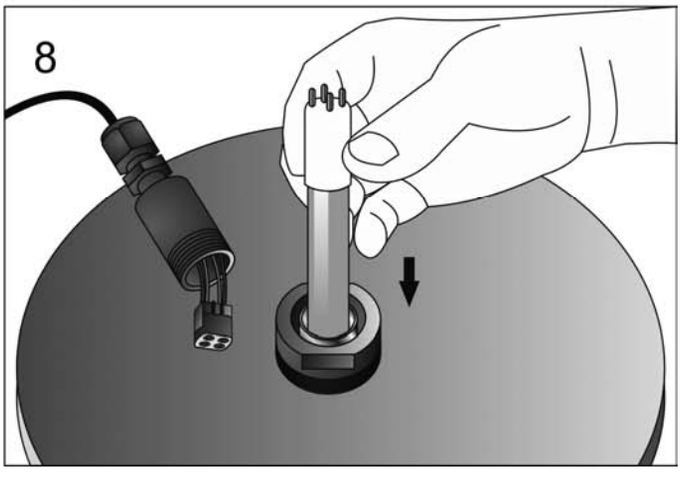


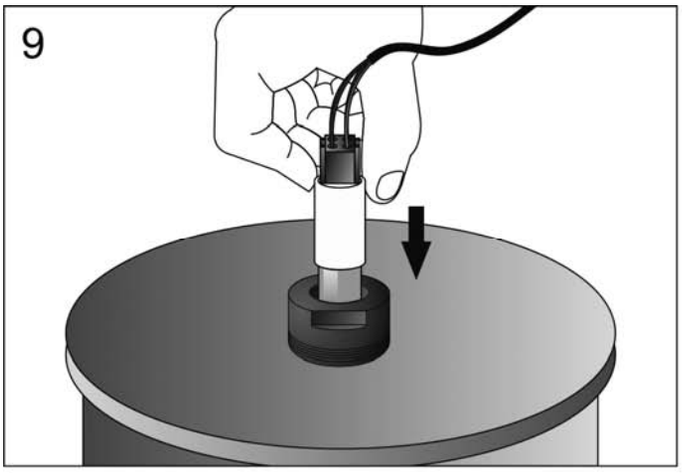


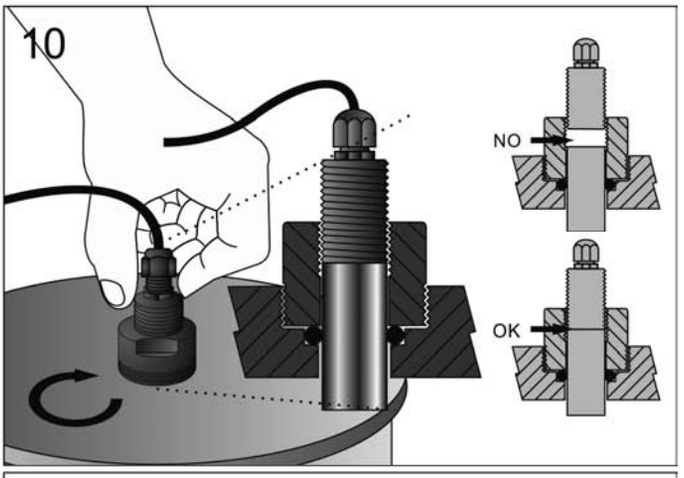


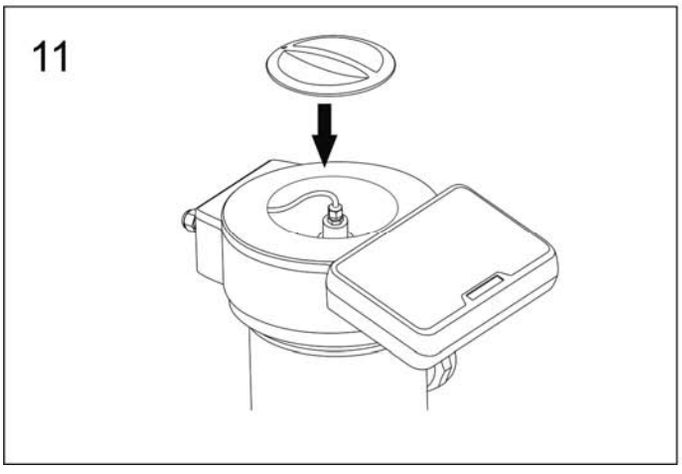


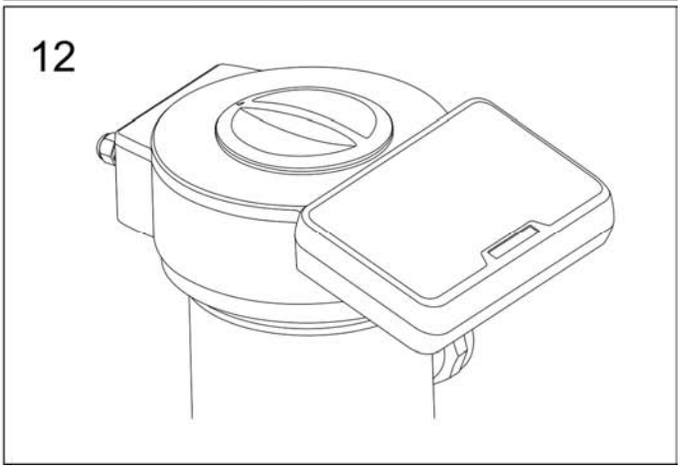












Cleaning the quartz housing

At least once per year, the quartz lamp housing must be inspected to ensure that is 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 this section.
If necessary, clean the quartz housing using a soft cloth moistened with spirit vinegar or a diluted acid.

8. 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 production indicator always shows '0', regardless of the production level selected	Check the electrodes. Check the connections between the power supply and the electrolysis cell. Check the salt concentration.
The power supply does not connect	Check that it is properly connected to a 230 V/50-60 Hz supply in the pool's electrical control panel. Check the fuse, in the lower part of the unit.
The levels of free chlorine in the water are too low	Check that the system produces chlorine at the jet nozzles. Check that the chemical parameters of the water (pH, combined chlorine, isocyanuric acid) are correct. Increase filtration time. Add chlorine stabiliser (cyanuric acid) to the level of 25 - 30 g/m^3.
The pH/ORP controller always indicates high values, or the readings are unstable	The connection cable of the pH/ORP sensor is damaged. Clean the contacts or replace the cable. 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. 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.
The pH/ORP sensor cannot be calibrated	The calibration solution has expired or is contaminated. The sensor membrane is blocked. Check that the membrane is not damaged. Clean the sensor with dilute acid, shaking it gently. Faulty sensor. Replace with a new sensor.
The pH/ORP sensor is slow to respond	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. 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.

9. TECHNICAL SPECIFICATIONS:

TECHNICAL SPECIFICATIONS:

Standard Operating Voltage

230V AC, 50/60 Hz.
Cable: 3 x 1.0 mm^2, length 2 m.
NEO Series 12 0.36 A
NEO Series 24 0.72 A
NEO Series 32 0.89 A

Fuse

NEO Series 12 2A T (5x20 mm)
NEO Series 24 3.15A T (5x20 mm)
NEO Series 32 4A T (5x20 mm)
UV Lamp (12/24/32) 0.65A T (6x32mm)

Output Voltage

Cable 3 x 4 mm^2, length 2 m.
NEO Series 12 12 A (2x6 A)
NEO Series 24 24 A (2x12 A)
NEO Series 32 32 A (2x16 A)

Production

NEO Series 12 10 - 12 g./h.
NEO Series 24 20 - 24 g./h.
NEO Series 32 25 - 32 g./h.

Minimum Recirculation Flow

NEO Series 12 2 m^3/h.
NEO Series 24 4 m^3/h.
NEO Series 32 6 m^3/h.

Number of Electrodes

NEO Series 12 7
NEO Series 24 9
NEO Series 32 7

Net Weight (including packaging)

NEO Series 12 21 Kg.
NEO Series 24 23 Kg.
NEO Series 32 25 Kg.

GENERAL CHARACTERISTICS:

Control System

- Microprocessor.
- Membrane keypad with control buttons and operational indicator LEDs.
- I/O control: 3 voltage-free contact inputs to detect external flow, the position of the automatic cover and residual ORP / Chlorine control.
- Output to the cell: production control (11 discrete levels).
- Integrated pH controller.
  (only in NEO -XXPH y NEO-XX + models)
- Integrated ORP controller.
  (only in NEO-XX + models).

Self-Cleaning

Automatic, by inverting the polarity

Operating Temperature

From 0°C to +.40°C
Refrigeration by natural convection

Material

Power supply / wall terminal
- ABS

Electrolysis cell and probe holder
- Polythene

pH Sensor (NEO-XX PH y NEO-XX + models)

Body: plastic (blue)
pH range 0 -12
Solid electrolyte

ORP Sensor (NEO-XX + models)

Body: plastic (red)
Range 0 - 1000 mV
Solid electrolyte

10. WARRANTY CONDITIONS:

10.1. GENERAL CONSIDERATIONS

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.

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

a. LAMP: 13,000 hours or 1,000 strikes.
b. ELECTRONIC BALLAST: 2 YEARS
pH /ORP SENSORS: 6 MONTHS.
d. ELECTRODES (Electrolysis): 2 YEARS (or 5,000 hours).

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

- 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.

- 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.

- 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.

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

- 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.

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

10.2. SPECIFIC CONDITIONS

- 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.

- 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.

10.3. LIMITATIONS

- 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.

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

- 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.

- 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.

- Damages or fault in the Product due to any of the following causes:

- Operation at a pH greater than 7.6.
- Explicit use of unauthorised chemical products.
- Exposure to corrosive atmospheres and/or temperatures below 2°C (36°F) or above 40°C (104°F).
- Incorrect programming of the system and or inadequate calibration of the pH/ORP sensors.
- Operating with a salinity below 0.5gr/L of sodium chloride and/or temperatures below 15°C (59°F) or above 40°C (104°F).

I.D. ELECTROQUIMICA, S.L.

EN	PRODUCTS	**NEOLYSIS PRIVATE SYSTEM**
FR	PRODUITS	**PRIVATE SYSTÈME D'NEOLYSIS**
ES	PRODUCTOS	**SISTEMA NEOLYSIS PRIVADO**
IT	PRODOTTI	**NEOLYSIS SISTEMA PRIVATO**
DE	PRODUKTE	**NEOLYSIS PRIVATE SYSTEM**
PT	PRODUTOS	**NEOLYSIS SISTEMA PRIVATE**

NEO-12 NEO-12PH NEO-12+
NEO-24 NEO-24PH NEO-24+
NEO-32 NEO-32PH NEO-32+

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) 2006/95EC.
Direttiva di Compatibilità elettromagnetica (CEM) 2004/108/EC.
Direttiva ROHS 2011/65/EC.

KONFORMITÄTSERKLÄRUNG 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.

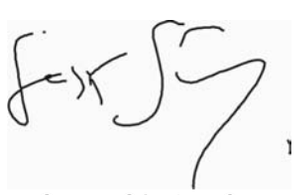
DECLARAÇÃO CE DE CONFORMIDADE

Os produttos relacionados acima estão conformes as:

Directiva de Equipamentos de Baixa Tenção (LVD) 2006/95/EC.
Directiva de Compatibilidae 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:
Assinatura / Título:
Handtekening / Kwalificatie:



Gaspar Sánchez Cano
Gerente

01-09-2012

Made in EC
NIF ES-B03731908