

## INSTALLATION AND MAINTENANCE MANUAL

(Instructions based on Spanish)

### **1. SAFETY PRECAUTIONS**

This symbol together with one of the following words "Warning" or "Danger" indicates the risk level deriving from failure to observe the prescribed safety precautions:



**DANGER risk of electric shock** (Warns that failure to observe the precautions involves a risk of electric shock)




**DANGER** (Warns that failure to observe the precautions involves a risk of damage to persons or things)



**WARNING** (Warns that failure to observe the precautions involves a risk of damaging the pump or the installation)

### **2. WARNINGS**

 Before carrying out the installation, please read this instruction manual carefully. It is essential that both the electrical installation and the connections are performed by qualified personnel, who possess the required technical expertise required by the specific safety regulations for the project, installation and maintenance of the technical installations for the country where the product is to be installed.

Any non-compliance with the safety regulations, in addition to being a danger to personnel and causing damage to the equipment, will cancel all rights to interventions covered by the guarantee.

- The device is not designed for use by persons (including children) with physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised and instructed by a person responsible for their safety.
- Children should be supervised to ensure they do not play with the appliance.

### **3. APPLICATIONS AND USE**

Self-induction electric pump for swimming pools, incorporating large capacity pre-filter with high filtration capability. Transparent, polycarbonate filter cover allowing easy observation of the inside of the pre-filter basket.

Our pumps have been developed for continuous operation and the materials used in their manufacture are subjected to strict controls and are rigorously verified.

The machine has been designed to pump water that is free from explosive substances, with a density equivalent to 1000 Kg/m<sup>3</sup> and a kinematic viscosity of 1 mm<sup>2</sup>/s, as well as chemically non-aggressive liquids.

It has no uses other than the one previously described.

### **4. TECHNICAL DATA AND LIMITATIONS OF USE**

Power supply voltage:	Single-phase, 230 V, 50/60 Hz.	See data plate
	Three-phase, 230 - 400 V, 50/60 Hz.	

Motor Protection: "IP 55"

Insulation class: Class "F"

MAXIMUM ENVIRONMENTAL TEMP.: +40°C

MAXIMUM PUMPED LIQUID TEMP.: +40°C

### **5. TRANSPORT**

Do not subject the products to unnecessary bumps and knocks.

When lifting and transporting the unit, use machines and tools that have been designed for this purpose, using the pallet supplied as standard (if present).

## **6. STORAGE**

All the pumps should be stored in a sheltered, dry, dust-free place, with regulated air-moisture levels when possible. The pumps are supplied in their original packaging, where they must remain until assembly. If not, keep the suction and discharge ports closed.

## **7. INSTALLATION**

### **General**



The pump should be installed as close as possible to the level of water, leaving a minimum of two metres to the swimming pool edge in accordance with IEC publication No. 364 in a horizontal position, in order to obtain minimum run length in suction and a reduction of load losses.

Sufficient space should be allowed for removing to pre-filter basket for cleaning and re-fitting.

The pump should be installed on a solid, very smooth surface. It is necessary to perfectly fit the pump through the two holes provided for this purpose in the support base by means of two screws or other similar methods to prevent any possible noise or vibration that could adversely affect the pump operation.

The pump should not be installed at a geometric height of more than 3.5 metres above the water level.

In order to obtain optimum pump self-priming, it should be installed at a maximum of 2.5 metres above the water level.

The pump should be protected from any possible flooding and correct ventilation should be ensured, but without risking the effects of freezing. In the case of outside installation, the pump should be protected from rain and a power supply cable in accordance with EEC standards, type H07-Requirement Number-F (in accordance with VDE 0250) should be installed. The pump is normally supplied without an electric power cable. In this case the pump test cables can be seen to be cut at the outlet of the motor junction box. These cables must be replaced by a suitable electric hose in accordance with the legislation in force in each country.

In the case of being installed a fibre housing, whether buried or half-buried, sufficient air flow should be guaranteed to generate correct ventilation that prevents the maximum interior temperature from exceeding 40°C.

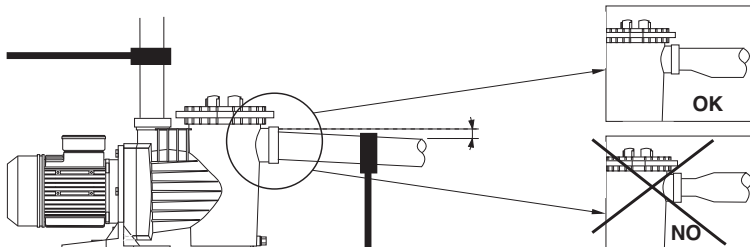
### **Assembling the Piping**



We recommend the installation of cut-off valves in both pump suction and impulsion so that the pump may be removed from the installation without having to empty the whole circuit first.

The suction piping should be at least the same diameter as the pump connection, and it is also recommended that the impulsion piping should also be the same diameter as the pump connection.

The suction piping should be assembled with a slight inclination towards the pump to prevent air pockets forming inside.



It is very important that both the suction and impulsion piping are independently supported and correctly fixed in place so that the pump does not have to support their weight nor the vibration produced by the water flow through them. In a situation where a long length of impulsion piping is used, we recommend the installation of a check valve to prevent the water hammer produced by the return of the water causing any damage when the pump stops.

If flexible piping is employed, it should be the non-compressible type.

When making the connections to the pump, totally clean connections should always be used, with the thread in perfect conditions and leak-tightness should be obtained only through the use of Teflon tape, (glues or similar products should not be employed). These connection should be slowly tightened, with special care not to strip the internal thread of the pump by over-tightening.

### **8. ELECTRICAL CONNECTION**



Before carrying out any maintenance on the electrical part of the motor, it should be disconnected from the electricity supply.

System protection should be based on a differential breaker ( $I_{fn} = 30 \text{ mA}$ ). A GOOD EARTH CONNECTION MUST BE MADE WHENEVER POSSIBLE. The earth terminal, in particular, must be connected to the yellow/green conductor of the supply cable. An earth conductor that is longer than the phase conductors must also be used so as to prevent it from being the first to disconnect if pulled.

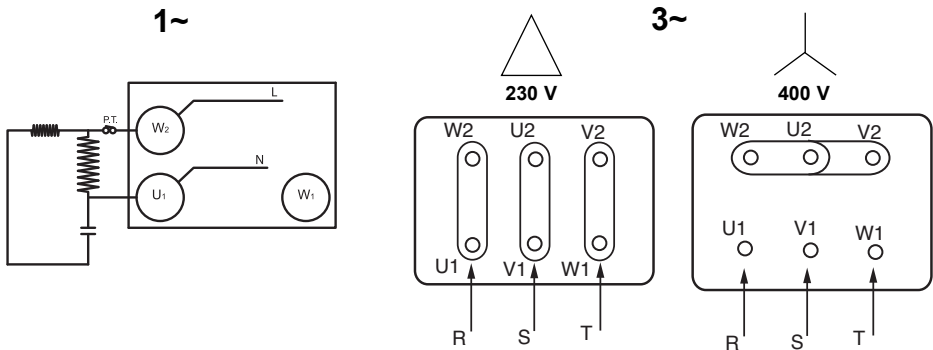
All our single-phase motors incorporate thermal protection that will disconnect the pump if the motor temperature increases due to an overload and will then connect the electricity supply again once the temperature has dropped to within normal levels again.

For three-phase versions, the user should provide appropriate protection in accordance with current regulations.

It is essential to connect the pump to a suitable ground.

The following diagram, should be used when making the electrical connections to the pump terminals.

Use is only permitted if the electric installation has safety protection systems in accordance with personal safety regulations in force in the country where the product is to be installed.



## **9. CHECKS PRIOR TO PUTTING INTO SERVICE**



### **THE PUMP SHOULD NEVER BE ALLOWED TO OPERATE OFF LOAD**

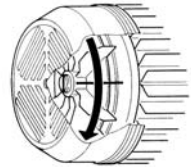
Check that the voltage and frequency of the incoming mains electricity supply correspond to those on the pump's specification plate.

Unscrew the transparent pre-filter cover and fill the pre-filter with water until the water level reaches the suction hole. Replace the pre-filter cover and hand-tighten only, ensuring that it is fully tightened.

Check the pump shaft is able to freely rotate.



Check that the direction of motor rotation corresponds with that indicated on the specification plate (the fan should rotate in a **CLOCKWISE DIRECTION**, when viewed from the rear of the motor. If the motor is three-phase and it is observed that it is rotating in the opposite direction, then two of the supply phases should be inverted at the protection panel.



## **10. PUTTING INTO SERVICE**

Open all valves, both suction and impulsion, and switch on the pump.



Wait a reasonable time for the pump and suction piping to self-prime. If this takes too long, then the priming process should be repeated.

Once the pump has correctly self-primed and the pre-filter body is seen to be full of water, the motor current should be checked and the thermal relay adjusted appropriately.

## **11. MAINTENANCE, DISMANTLING AND RECYCLING**



The most important maintenance operation is that of keeping the pre-filter basket clean, and this filter state check should be performed after each filtration operation and especially after bottom-cleaning. The procedure is as follows:

Disconnect the electricity supply to the pump. Close the suction and impulsion valves to the pump. Open the pre-filter cover, remove the basket and clean it. Once it is clean, replace it, but before closing, check the condition of the pump body thread, pre-filter cover and the O-ring, cleaning them only with water, and where necessary apply a light coating of neutral Vaseline.

The pump should only be dismantled by qualified personnel who hold the technical qualifications required under the technical safety regulations of the country where the product is located.

This product and its components must be disposed of in accordance with environmental regulations. Use local public or private waste-collection systems.

Under no circumstances should chlorine tablets be placed in the pre-filter basket.

The special key that is supplied to OPEN the pre-filter cover, should never be employed to close it.



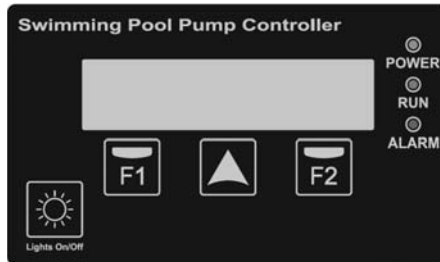
When there is a frost risk, or when the pump is to remain off for any significant length of time, then it should be emptied. This is accomplished by removing the two emptying plugs on the lower part of the pump body.

Apart from what has been stated above, our pumps do not require any other maintenance operations since the bearings have been dimensioned and lubricated for life.

## POSSIBLE FAULTS, THEIR CAUSES AND SOLUTIONS

FAULTS	CAUSES	SOLUTIONS
<ul style="list-style-type: none"> <li>The pump will not prime</li> </ul>	<ul style="list-style-type: none"> <li>The pump has not been primed</li> <li>Air entering by the suction piping</li> <li>Air entering via the mechanical seal</li> <li>Incorrectly closed pre-filter cover</li> <li>Excessive suction height</li> <li>Inverted motor rotation</li> <li>Incorrect voltage</li> </ul>	<ul style="list-style-type: none"> <li>Fill the pre-filter with water.</li> <li>Check the connections and piping.</li> <li>Replace the mechanical seal.</li> <li>Close correctly.</li> <li>Install at a suitable height.</li> <li>Invert two of the motor phases.</li> <li>Check the plate voltage.</li> </ul>
<ul style="list-style-type: none"> <li>The pump provides a poor flow rate</li> </ul>	<ul style="list-style-type: none"> <li>Air entering by the suction piping.</li> <li>Excessive suction height.</li> <li>Inverted motor rotation.</li> <li>Incorrect voltage.</li> <li>Blocked</li> <li>Suction piping diameter is less than that required.</li> <li>Impulsion closed or blocked.</li> </ul>	<ul style="list-style-type: none"> <li>Check the connections and piping.</li> <li>Install at a suitable height.</li> <li>Invert two of the motor phases.</li> <li>Check the plate voltage.</li> <li>Clean the pre-filter basket.</li> <li>Correctly dimension the suction piping.</li> <li>Open the valve and check the sand filter condition.</li> </ul>
<ul style="list-style-type: none"> <li>The pump makes a lot of noise</li> </ul>	<ul style="list-style-type: none"> <li>Suction piping diameter is less than that required.</li> <li>The pump or piping has not been correctly secured.</li> <li>Inverted motor rotation</li> </ul>	<ul style="list-style-type: none"> <li>Correctly dimension the suction piping.</li> <li>Recheck the pump and piping securing methods so that they are separate.</li> <li>Invert two of the motor phases</li> </ul>
<ul style="list-style-type: none"> <li>The pump will not start</li> </ul>	<ul style="list-style-type: none"> <li>Lack of mains supply.</li> <li>Breaker operation.</li> <li>Incorrect voltage.</li> <li>Motor jammed.</li> </ul>	<ul style="list-style-type: none"> <li>Check the voltage and fuses.</li> <li>Check and reset breaker.</li> <li>Check the plate voltage.</li> <li>Consult the Official Technical Service.</li> </ul>

## **SWIMMING POOL PUMP CONTROLLER**



### **12.1. SAFETY RULES**

Before installing and using the product:

- Carefully read the whole of this manual
- The installation and maintenance must be carried out solely and exclusively by authorised personnel, responsible for making the electrical connections in accordance with current safety regulations.
- The frequency converter must not be used by people with reduced physical, sensory or mental capabilities, or without the due experience or knowledge, except if a person responsible for their safety has explained the instructions and supervised their operation of their frequency converter.
- Do not let children play with the frequency converter.
- The manufacturer accepts no liability for damage caused by improper use of the product and shall not be held responsible for damage caused by maintenance or repairs carried out by unqualified staff and/or using non-original replacement parts.
- The use of unauthorised replacement parts, alterations of the product or improper use shall automatically render the product guarantee null and void.

During normal operation:

- Before removing the cover of the controller for any maintenance work, ensure you disconnect the mains voltage.
- Never electrically disconnect the controller while the motor is rotating. This action may cause irreparable damage to the electronics of the controller.
- Even if the motor is not turning (RUN LED off), the electrical supply must still be cut off for any maintenance work.

## **12.2. TECHNICAL DATA**

Nominal values:

Power supply voltage (V)	220-240 V single phase
Motor voltage (V)	220-240 V single phase
Working frequency (Hz)	50/60 Hz
Maximum intensity (A)	16 A
Protection rating	IP 55

## **12.3. INSTALLATION AND ASSEMBLY**

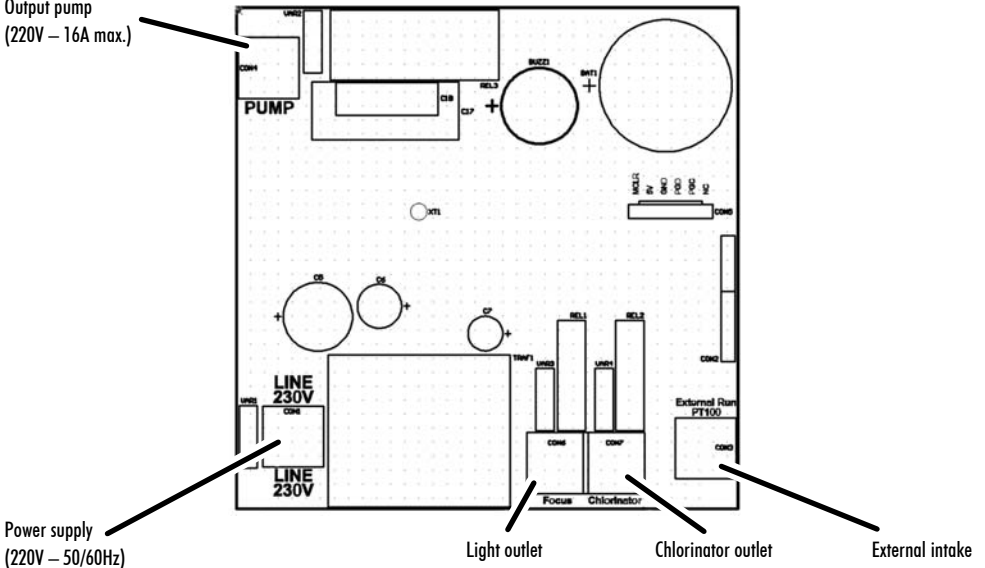
Before installing the pump with time controller, carefully read the whole of this manual and consult the safety rules valid in each country.

The authorised installer must consider the following indications:

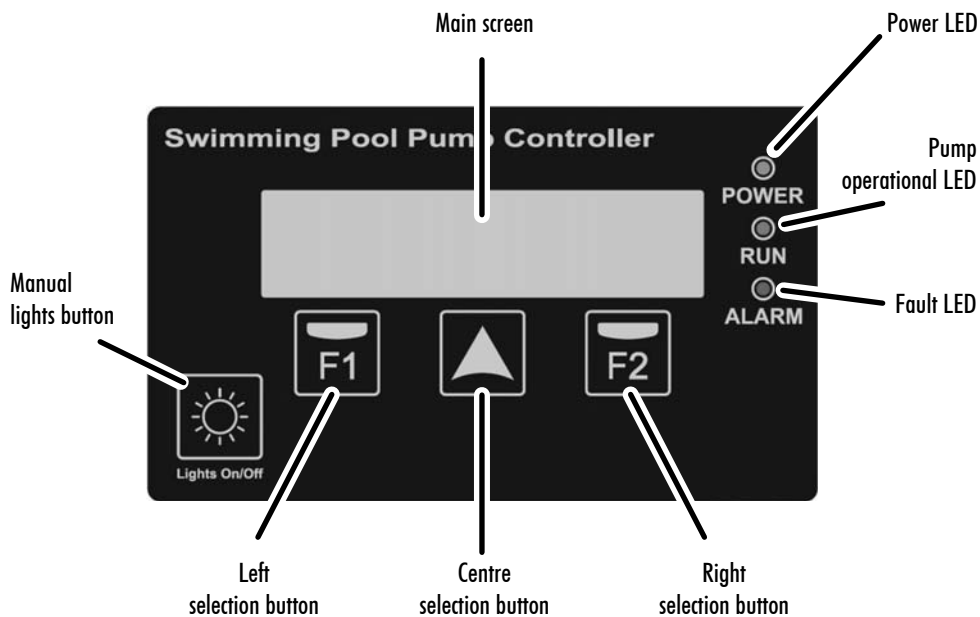
- It must be installed in a well-ventilated area, protected against moisture and direct exposure to the sun and rain.
- Before making the electrical connections, ensure the cable used to provide power to the frequency converter is not live.
- The electric power cables to the controller must be of the correct size for the nominal consumption of the pump and the length of cable required.

## **12.4. ELECTRICAL CONNECTIONS**

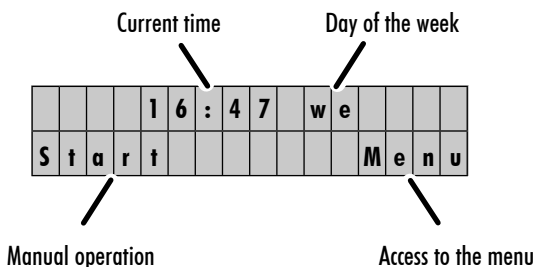
Output pump  
(220V – 16A max.)



## 12.5. SCREEN FORMAT



## 12.6. MAIN SCREEN



## 12.7. OPERATION MODE

The swimming pool pump's intelligent controller eliminates electrical panel installation requirements for the pump's automatic start-up, the lights, etc. in domestic installations, and includes other functions and protection elements that a conventional electrical panel does not have.

Its main features are:

- Very intuitive QuickStart assistant for the basic configuration of the unit.
- Timer control activation/deactivation of the swimming pool pump, with three configurable daily cycles and with the possibility to select the days of the week on which filtration is required.
- Timer control for activating the swimming pool lights, and other programmable timing applications. This function also enables configuration of the days of the week on which the lights will be activated.



- Manual activation of the swimming pool pump, with timer stop, for occasional use.
- Manual activation of the swimming pool lights, also with timer stop, by pressing the dedicated button for this purpose.
- Programmable output for salt chlorinator activation.
- External intake programmable by remote activation of the pump, for example from a heater, a home automation system, etc.
- Activation of the pump's external intake by means of a type PT-100 temperature probe (not included as standard), which prevents frozen pipes.
- Amperimetric protection of the motor against over amperage.
- Protection of the pump against running dry (programmable).
- Alarm sound to indicate anomalies in the pump.
- Partial/total totaliser of the pump's operating hours.
- Failure logging.

### **12.8. START-UP WIZARD**

When starting the unit there is a QuickStart wizard, with the following sections:

a) LANGUAGE

			E	N	G	L	I	S	H	(	E	N	)				
														N	e	x	t

b) DATE (DD/MM/YYYY)



				1	8	/	0	4	/	2	0	1	6				
B	a	c	k											N	e	x	t

c) TIME (HH:MM)

						1	4	:	2	7							
B	a	c	k											N	e	x	t


### **12.9. SETUP MENU**


1 - LANGUAGE

Use the  button to modify the language of the menus and alerts. Press  to save the selection.

2 - DATE/TIME

In this submenu, the current date and time can be modified, which are very important values because the filtration and lighting programs depend on the information provided in this point.

The value to modify will flash, making modification more intuitive. The value to be modified can be increased by pressing the  button.



The changes made will not be effective until the OK button is pressed . This text is shown when editing the minutes of the current time.

The time controller has an internal clock that together with the battery supplied guarantee that the date and time set will not be lost if there is a power cut.


### 3 - FILTRATION

In this submenu, the parameters and times referred to in the pump's filtration times can be set.

On the first submenu selection screen, set the days the filtration is required to be active. The filtration options available are Monday to Sunday (every day of the week) Monday to Friday, only Saturday and Sunday or only Friday and Saturday. Filtration can also be completely deactivated.


Press the  button to modify the selection. Press  to confirm.

If "FILTRATION OFF" is selected, configuration of the remaining parameters will not continue.

If any of the other ranges of filtration days are selected, the process will continue to the selection of daily filtration cycles. From 1 to 3 daily filtration cycles can be selected in this screen, which can be modified with the  button. Once the daily filtration cycles have been selected, in the following screens start time and the filtration time of each cycle individually, up to a maximum filtration time of 12 hours per cycle.

### 4 - AMPERAGE

Access this submenu to adjust the motor's nominal consumption.



Use the button  to increase the motor's nominal consumption in increments of a decimals of an ampere, up to 10% above the nominal consumption of the pump, aiming to protect the electric motor.

Press  to save the selection. Press  to exit without changing the value.

Within this submenu also we have the option to enable detection against dry running.


### 5 - LIGHTING

This is the submenu for editing the automatic activation of the swimming pool lights, if this automation is required. By default the lighting programme is deactivated, although it can be activated in a very similar way to adjusting the filtration cycles in submenu "3. FILTRATION".

On the first screen, select the days on which to activate automatic lighting of the swimming pool, selecting from the options of Monday to Sunday, Monday to Friday, Saturday and Sunday and Friday and Saturday. Press  to modify the selection. Press  to save the selection.

On the following screens set the start time for the lighting activation and the lighting time required, up to a maximum of 12 hours.

## 6 - HISTORY

In this submenu, merely informative, record is shown of the latest alarms, if any, due to motor current, or detection that the pump is running dry. If there is more than one, modify the viewing by pressing .

The information is presented in the following format:

**XX-DD/MM/YY-##**

Where:

**XX** = type of alert (OL for overcurrent, DR for running dry)

**DD/MM/YY** = Day/Month/Year of alert

**##** = Number of alert on the same day

## 7 - MAINTENANCE

The time controller can advise when cleaning the basket in the pump is recommended as well as when it is recommended to clean the sand filter.


The alerts, if they are active, simply show a message on the screen, which can be reset.

Warnings can be adjusted individually, indicating how frequently, in days, we want to be warned regarding the cleaning of the basket or filter, as the case may be. If they are active, they will simply show a message on the screen accompanied by a blinking light "ALARM". These warnings are only informative, with the aim of helping us to carry out the general maintenance tasks of the filtration system.

We will also find the function "SKIMMING", disabled by default, which allows us to select how frequently, in hours, the pump will be activated for a few minutes. The operating time once these hours have been completed is 3 minutes. When this time has passed, the programmed hours will be counted once again and the pump will be activated for 3 minutes, and so on. This function is very useful in swimming pools where waste often falls onto the surface of the water, such as leaves from trees, insects, etc...

## 8 - METERS

Informative screens that show the total count of partial operating hours (press  to reset), and also a totaliser of the pump's general operating hours (not resettable).

Press  to select the total or partial viewing of the pump's operating hours.

## 9 - INTAKE/OUTPUT

The external intake as well as the relay output can be activated in this submenu (deactivated by default). Press  to activate/deactivate.

If the external intake is enabled, the pump will automatically start if active contact is detected, and will deactivate when contact is deactivated. Activation by active contact depends on programming in section "3. FILTRATION". Deactivation by deactivated contact takes into account the programming in section "3. FILTRATION" to decide whether the pump is in a programmed filtering cycle or not.

This intake also enables the remote activation/deactivation of the pump through a PT-100 type temperature probe. In this case, the system decides, depending on the temperature recorded by the sensor, the activation and deactivation time of the pump, from running for 1 minute and stopped for 59 minutes at +3°C up to a maximum of 55 minutes running per 5 minutes stopped at very low temperatures (-30°C). In this extreme range of temperatures, activation and

deactivation are calculated automatically.

The pump output, if it is enabled, will activate the relay marked as “chlorinator” when the pump is activated and deactivated. This contact can be used to enable operation of a salt chlorinator or to remotely control the pump status.


#### **10 - VERSION DE SOFTWARE**

An informative screen showing the software version of the time controller.

#### **11 - FACTORY RESET**

El último submenú de los ajustes permite el reseteo total de la configuración del controlador. A través de una pregunta The last submenu in configurations enables a total reset of the configuration of the controller. Through a question, the user can recover the factory configuration and start the start-up wizard.

The factory reset eliminate all settings made except for the alert history and the total operating hour counter on the pump.

**Note 1:** The  button is disabled if the configuration menu is active.

**Note 2:** If no selection is made in the configuration menu, the stand-by screen will return after 15 seconds.

**Note 3:** The values changed in the start-up wizard as well as in the configuration menu will be stored in case of power cut, therefore reconfiguration is not required.

### **12.10. WARNING MANAGEMENT**

During normal operation of the time controller there may be alerts which are mostly merely informative, and only in some cases may also stop the pump.


There are luminous and acoustic type alerts. The luminous only alerts may be considered a warning, but in no case involve modification to the normal operation of the controller. These alerts may occur due to:

- Dirty pump basket alert
- Dirty sand filter alert

These alerts can be reset manually.

There are other types of alerts that may be considered alarms, and the luminous alert will be accompanied by an acoustic alert. The acoustic alert is not continuous, and the amount of time it sounds will depend on the time the alert is active. These alarms are:

- Excess ammeter consumption of the motor
- Detection of the pump is operating without water (if the configurations are activated)

These two alarms are self-resettable, up to a point which very infrequently occurs in which the pump is totally blocked, until an authorised operator with manually reset is the fault with the  button. The alerts considered alarms generate an entry in the alert history.


Remember that only the alarm about ammeter consumption on the motor is always active and cannot be deactivated. All the other alerts/alarms are deactivated by default and are only operative for supervision by manually activating them.

### 12.11. MANUAL FUNCTIONS


The intelligent controller has, in addition to the programmable automated features for activating the pump and the swimming pool lights, two manual functions that enable manual start of the pump as well as manual activation of the swimming pool lights.

To manually activate the pump, from the stand-by screen select the pump timer activation submenu by pressing  :

	B	O	M	B	A	=	6	0	m	i	n	
-	>											

In this screen, each time  is pressed, the manual activation of the pump can be selected for 2 minutes, 5 minutes, 30 minutes, 60 minutes, 2 hours, 4 hours, 8 hours or deactivation. Just select the manual time desired and after a few seconds the pump will be activated for the set time. The pump will deactivate once the intelligent controller has checked that the selected time has transpired.

**Note:** It must be pointed out that if a filtration cycle begins during manual timing of the pump, or the external intake enables the pump for operation, the pump will not stop until the end of the manually selected time, as long as the programme filtration is not finalised, or the external intake disables operation of the pump, respectively. It also indicates that if the chlorinator outlet is enabled with operation of the pump, this outlet will also be activated during manual operation.

To manually activate the swimming pool lights, there is a specific button  .

The same as for manual activation of the pump, each press enables manual operating time of the lights to be selected:

	L	I	G	H	T	S	=	1	5	m	i	n	

In this case, the times that can be selected are 15 minutes, 30 minutes, 60 minutes, 2 hours, 4 hours, 8 hours or deactivation. Only the manual operating time must be selected and after a few seconds the lights will activate for the manually set time.

**Note:** It must be pointed out that if a lighting cycle starts during the manual timing of the lights, the pump will not stop until the end of the manually selected time, as long as the automatic lighting time has not finalised.

### **12.12. ADDITIONAL ELEMENTS**

The additional elements for installation of the intelligent controller are:

- Wall mounting
- PT-100 temperature probe

#### a) WALL MOUNTING:

The wall mounting enables the intelligent controller to be fixed to the wall in installations in which the controller does not need to be directly connected to the motor's terminal cover. In these situations it is very important to ensure the correct sizing of the pump/intelligent controller electrical connection cable. The following table shows the recommended cable selections based on the electrical power of the motor and the distance:

Motor power (HP)	Cable section (mm <sup>2</sup> )		
	1	1,5	2,5
	Maximum distance (metres)		
0,25 / 0,33	40	130	220
0,5 / 0,75	25	60	110
1 / 1,5	-	30	60
2 / 3	-	15	35

#### b) PT-100 TEMPERATURE PROBE:

The PT100 temperature probe is an element for detecting the water temperature in installations in which there is a possibility that the pipes may freeze. To place the probe into location, it is recommended that it is as close as possible to the swimming pool and as far away as possible from the pump room. The temperature probe has a ¼" male threaded connection, and it is recommended to install it on the pump's pressure pipes.

It must be connected to electricity through the intake marked "PT100" on the intelligent controller. For its operation, "INTAKE ON" must be selected in configuration menu "9. INTAKE/OUTPUT".



### **12.13. WARRANTY**

The controller is guaranteed for 24 months from the purchase date. The use of original spare parts, alterations or improper use will void the product guarantee.

### **12.14. DISPOSAL AND ENVIRONMENTAL ASPECTS**

To remove the parts that make up the time controller, the current rules and regulations in each country in which the product is used must be adhered to. In any case, do not dispose of polluting parts into the environment.