



# BrightBlue

O TRATAMENTO INTELIGENTE DA ÁGUA

SENSUS S



SENSUS B



SENSUS



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# 1 Welcome

Thank you for choosing a Bright Blue equipment. We are certain you made the right choice in purchasing the SENSUS controller, as it is one of the most advanced equipment of ORP automatic control available in the market. The need for well-treated a pool was the motto that led us to develop this equipment in order to assure our customers clean and healthy water at all-time.

## 2 Safety Instructions

This product is a combination of an electronic controller and the respective accessories. It has been assembled and tested according to the safety measures applied to electronic devices in the EC. It has been cleared by the quality department within the factory.

To preserve status and guarantee operation safety, the following instructions must be observed.

Product installation must be executed by licensed personnel only.

Electrical installation must be done according to local electrical safety regulations.

Product connection to the power line must allow total isolation (phase, neutral and earth) to ensure safe repair and maintenance operations. All circuits should be shielded by a differential switch with a maximal earth fault current of 30mA.

Before turning on the controller it is recommended to verify its physical conditions as well as the circuits. In case of installation in a warmer facility than origin leave the controller's door open to stabilize temperature and avoid condensation of the electronic components.

When the controller is turned on remember to let the capacitors discharge before handling them to avoid electric shock.

## 2.1 Safety Warnings

### **Risk of electrocution**

The controller's components carrying electrical tension which may lead to electrocution are signaled with the following symbol:



The performance of any electrical operation by unauthorized personnel is entirely forbidden. The equipment must be turned off before any maintenance operation.

### **Risk of corrosive chemical handling**



The water pH compensation liquid is a corrosive chemical. In the automatics circuits, the dosing pump works by injecting this type of liquid under extreme pressure inside the water circulation tubing. Beware the chemical circuit and handle these products with care.

### **Risk of irritating chemical handling:**



Irritating chemicals are used for the calibration of pH and conductivity sensors. These chemicals can cause irritation to the skin and eyes. When applicable, use of proper protection in handling these chemicals is recommended.

### **Risk of human error**



Product operation should follow adequate training to all personnel handling the equipment. Special attention must be paid to electrical and chemical safety measures before using the equipment.

## 3 EC Conformity

Bright Blue, Lda declares, that the electronic equipment for pool water treatment of its production are in compliance with the EC Mark Technical Requirements and Directives.



## 4 Package Contents

The SENSUS ORP controller comes in a box that includes the electronic controller, an ORP probe, probe holder, and optionally a float for controlling the level of the ORP compensation liquid.

## 5 Operation

In this chapter we describe the performance of the system, its operation and the necessary adjustments.

This pH controller has the function of measuring the pH value and controlling its compensation when necessary. The compensation can be enabled and/or disabled by the user through the ON/OFF menu.

The adjustment of parameters is done in the SET menu, where the following can be set: the pH reference value (set-point) and the type of liquid compensation (pH minus or pH plus). Upon entering the setup or calibration menu, the system temporarily enters standby.

This equipment can only operate when the circulation pump is on.

### 5.1 Front Panel



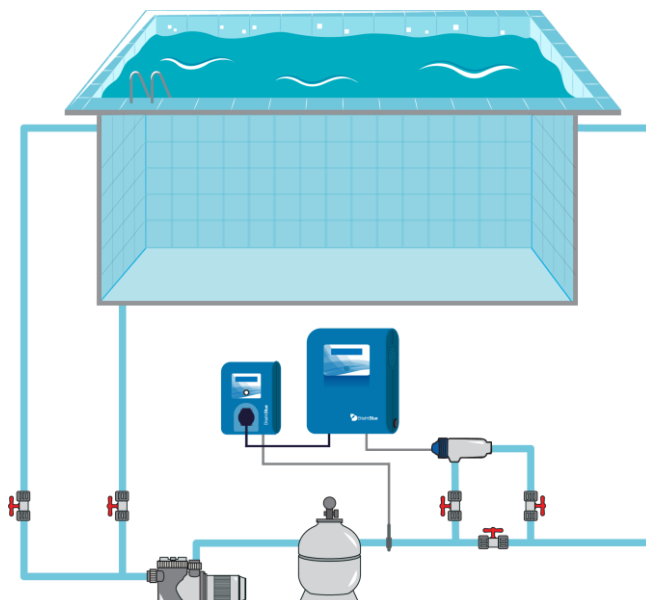
| Item | Function                                                                                                                                                                                                                                                                                                                                                       |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 2-line screen with 16 characters that provides information and allows interaction with the equipment                                                                                                                                                                                                                                                           |
| 2    | Round command button for navigation and setup actions when pressed: <ul style="list-style-type: none"><li>• Left rotation allows menu change and decrease in one unit within a submenu;</li><li>• Right rotation allows menu change and increase in one unit within a submenu;</li><li>• Button pressing enters a submenu or accepts the set values;</li></ul> |

**Figure 1 – Front Panel**

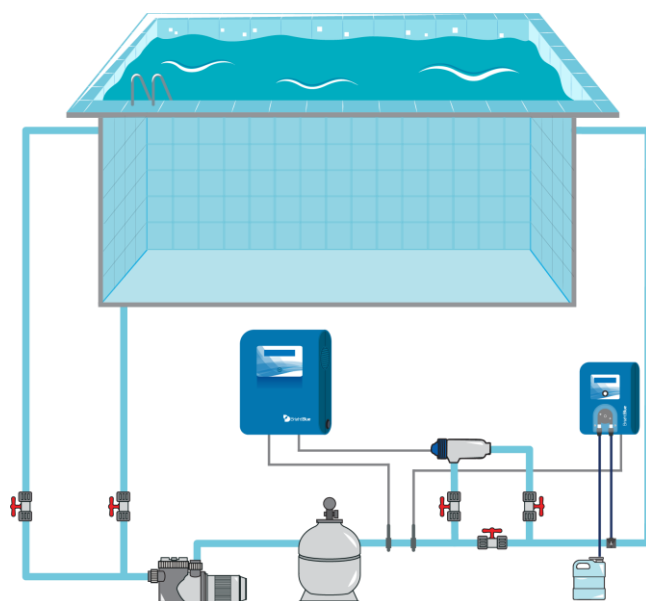
## 6 Instalação

The controller must be installed vertically, on a flat surface, keeping at least a 15cm distance from the wall or any other component to ensure proper.

Make sure that all the hydraulic circuits are shut and that the power supply is isolated before starting the installation.



**Figure 2A - Hydraulic representation of the SENSUS system schuko plug version**



**Figura 2B - Hydraulic representation of the SENSUS system injector pump version**

### 6.1.1 ORP Probe Installation

The placement of the ORP probe must be executed using a T with a 1/2" exit, or a clamp saddle with a 1/22" exit, **between the sand filter and the electrolysis cell**, as shown in Figure 2A and 2B. In either case, place the supplied probe holder for the ORP probe and ensure that it is in a vertical position. A non-vertical placement of the ORP probe may cause measurement errors and reduce its useful life.



Figura 3 - Sensor holder, clamp saddle and ORP probe

## 6.2 Electrical Installation

The power cable of the equipment must be connected to the circulating pump control so that it only operates when the pump is running.

## 7 First Operation

**ATTENTION:** The equipment should not be turned on without a proper ground connection. The SENSUS model can only be switched on when the circulation pump is connected.

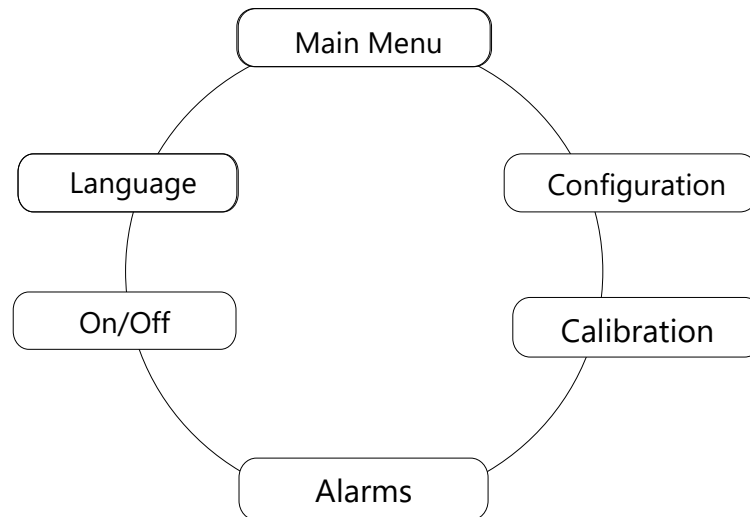
Connecting the device will illuminate the LCD screen showing the connection message followed by the normal menu (readings menu).

Make sure that the valves in the circuitry are in the correct position.

## 8 Menus

### 8.1 Introduction

This model is programmed with a circular control and monitoring menu that provides access to the options: on/off, Setup, calibration and active alarms display. The navigation takes place by means of a rotary actuator which is rotatable to the right or to the left and/or pressing the button.



**Figure 4 – Circular Menu Structure**

## 8.2 Main Menu

The main menu shows the system status. In a normal situation, without activated alarms, the equipment indicates at the top the ORP range to be reached (set-point) and at the bottom the ORP value that is being measured.



**Figure 5 - Main Menu without Active Alarms**

The indication of an active alarm will appear on the bottom right of the screen.



**Figure 6 - Main Menu with an Active Alarm**

## 8.3 Menu On/Off

This is the menu used to switch the dosing pump on and off. When on, the equipment does the readings and ORP compensation. When off the equipment will only do the readings, but not ORP compensation.

## 8.4 Setup Menu

To access the configuration menu, turn the control knob until the "SETUP" screen and press the button to enter. If there is a password set, this must be entered in order to access the menu. Enter the digits by turning the knob to the right (to



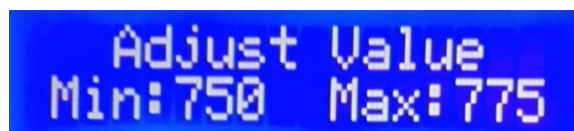
increase) or to the left (to reduce) and pressing to jump between digits. By default, the equipment comes with the calibrated password 0001.



**Figure 7 – Access to Setup Menu**

#### **8.4.1 Setpoint Setup**

It allows you to adjust the desired ORP value, which by default comes with a MIN 750 and MAX 775 so that the ORP stays within that range.



**Figure 8 – Setpoint Setup**

#### **8.4.2 Timeout**

Allows you to adjust the maximum compensation time to avoid overdose in case of probe failure.



**Figure 9 – Timeout**

#### **8.4.3 Priming Pump**

In the version with injection pump, it allows to prime the ORP dosing pump. Pressing the knob turns on the dosing pump and starts priming. When finished press the knob again to stop the procedure.



**Figure 10 – Dosing Pump Priming**

#### 8.4.4 Change *Password*

Allows you to change and/or deactivate the factory password.



**Figure 12 – Password Change**

To disable the password, proceed as indicated above and select 0000 as the new password. The message "Password Deactivated " will appear.

To return to the previous menu, select the position "Previous Menu" and press the knob.

### 8.5 Calibration Menu

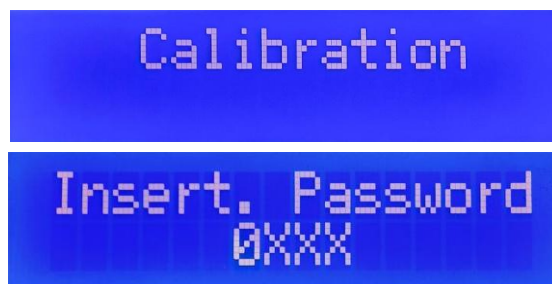
The equipment is pre-calibrated in factory. Nonetheless, it is recommended to check the sensor readings upon installation and, if necessary, run the calibration procedure once more. Every 6 months, or, exceptionally, when anomalous readings occur, the procedure should be repeated.

#### 8.5.1 Who should perform the calibration?

The calibration menu should only be accessed by technically skilled personnel with the proper knowledge of the calibration procedures of the various types of sensors.

#### 8.5.2 How to calibrate?

Before starting the calibration, make sure you have all the necessary materials for this process at hand.



**Figure 12 - Calibration Menu**

The calibration menu may be password protected. If this is the case, to access the menu you will be prompted for the password. (See chapter 8.4).

## **8.5.3 ORP Calibration**

### **8.5.3.1 With 2 Padrons**

Necessary material:

- ORP 240mV buffer (supplied)
  - ORP 470mV buffer(supplied)
  - Glass of drinking water
1. Cut off the water from the circuit where the probe is located
  2. Remove the probe from the support
  3. Rinse the probe in the water cup, remove it and shake it well to dry
  4. Insert the probe into the 470mV buffer solution
  5. Press the button and wait for the time indicated on the display
  6. Wait for the probe value to stabilize
  7. Press the button
  8. Remove the probe from the standard solution
  9. Rinse the probe in the water cup, remove and shake well to dry
  10. Insert the probe into the 240mV buffer solution
  11. Press the button and wait for the time indicated on the display
  12. Wait for the probe value to stabilize
  13. Press to finish the process
  14. Reinstall the probe in the probe holder

To cancel the calibration procedure, just switch the equipment off and on before finishing; the calibration will not be changed.

Take into consideration that the cleaning steps in the drinking water are essential to preserve the integrity of the buffer solutions supplied with the equipment. Do not use paper or a towel to dry the sensor because this will produce static electricity which will cause misreadings.

## 8.6 Alarms Menu

If there is an active alarm, the equipment will indicate it in the bottom right of the front panel. This information will disappear when the problem is solved.

### 8.6.1 Empty Tank Alarm

This alarm is triggered when the ORP solution tank is (almost) empty. It is necessary to replace or refill the tank. If the alarm goes off when the tank is not empty check that the ORP Buoy is fixed and placed in a perfectly vertical position.

### 8.6.2 ORP Timeout Alarm

This alarm is triggered if once the ORP compensation has started, the reading value does not change after the pre-programmed period (120 minutes by default). This alarm indicates a failure of the ORP probe or an insufficient pre-programmed time for the pool in question. Should this alarm occur, please contact Bright Blue or a specialized technician.

## 9 Terms and Conditions

### 9.1 Copyright

The present User Manual contains information secured by copyright. Every right is reserved to **Bright Blue, Lda**.

This User Manual has been written for personal use. The copy, reproduction, or translation of the present document, as a whole or partially, requires prior written consent from **Bright Blue, Lda**.

### 9.2 Responsibilities

This User Manual has been written to be read, understood, and followed by the people responsible for the installation, operation and maintenance of **SENSUS** model.

Knowledge of this manual's contents is vital to prevent damage and for correct system operation. It is intended to familiarize the user with the equipment and illustrate its mode of operation in order to obtain the maximum system profitability possible.

This User Manual contains important security information. Following the given instructions will contribute to:

- prevent possible hazards;
- reduce equipment failure; reduce repair costs;
- increase reliability and life span of the equipment and accessories.

This User Manual contains the necessary instructions to prevent environmental hazards and rules to sustain environmental protection. It should be kept close to the equipment and be read and known by all the people with access to the equipment, be it installation, operation, maintenance, or repair technicians and/or end users.

As a complement to this User Manual, the technical knowledge of the rules and norms applicable to electronic equipment handling is required.

## 9.3 Warranty

This product, comprising the electronic controller and accessories, was built and tested in accordance with the security measures applicable to electronic devices and was subjected to the most rigorous quality controls, leaving the factory in perfect condition.

This warranty applies to the products manufactured by **Bright Blue, Lda**, according to the terms and conditions imposed by the company.

**Bright Blue, Lda** guarantees the manufactured product in accordance with the conditions and responsibilities of the present terms for a period of:

- Two years for the electronic equipment.
- One year for the ORP probe

**Bright Blue, Lda** reserves the right to change the following warranty terms and conditions, without further notice, even after the date of purchase, applying the warranty terms and conditions in effect.

### 9.3.1 Warranty Exclusions

Warranty and Responsibility does not apply to:

- accessories, consumables and peripherals that are not included in the original product package and/or that have been purchased to other companies;
- original identification marks that have been torn, changed or removed from the equipment, accessories or products;
- S/N that have been torn, changed or removed from the equipment and/or from its components;
- flaws and defects due to accidents, negligence or improper use of the equipment and its components; flaws and defects from improper electrical installation; unusual physical or electrical stress; disrespect for environmental rules, abnormal conditions of temperature, moisture, corrosive matters exposure and/or other climate conditions that spread beyond the predefined limits;
- operation beyond capacity, failure to report to Bright Blue, Lda within the warranty period, substitution of parts not previously approved by Bright Blue, Lda, failure or damage due to misapplication, lack of proper maintenance, abuse and/or improper installation;
- use and operation of the equipment, or product, in contradiction to the system's documentation written and/or indications by Bright Blue, Lda;
- system failure that according to Bright Blue, Lda is not due to raw material defect or fabrication deficiency;
- system failure caused by inadequate supervision of the components that are subject to wear-out or breakdown;
- product alteration and/or repair by unauthorized personnel and/or unapproved by Bright Blue, Lda;
- customers, technicians and/or end users that did not follow the procedures specified in this warranty;

This warranty substitutes all others, explicit or implicit, including, but not limiting itself to implicit commercial warranties and adequacy to a predetermined objective of the equipment and corresponding documentation.

Bright Blue's responsibility is limited to repair and/or substitution of product parts as long as none of the warranty exclusion conditions is met.

Under any circumstance is Bright Blue, Lda responsible for any other cost, tax, expense, loss, or damage of any kind, directly or indirectly, consequential or accidental, including, but not limited to ceasing profits.

The present limited responsibility represents the overall responsibility assumed by Bright Blue concerning its products, articles, goods, and provided services. Bright Blue, Lda will not have any further obligation or responsibility, moral or otherwise. Nevertheless, this responsibility limitation

does not affect or limit the customer's legal rights in any way in regard to the sale of consumer goods and investment in this country.

Bright Blue, Lda does not assume the responsibility for any delay or fault caused by circumstances outside its own control. Possible situations include, but are not limited to, interrupted communications services, carrier delays, errors or interruptions that impede the delivery of goods, unexpected situations, climatic conditions, strikes, inability to establish contact with the customer or any responsible entity to report and/or confirm the situation.

Any technical assistance necessary will be provided within Bright Blue's facility and never on-site of installation. The freight costs from site to factory are the responsibility of the client.

If Bright Blue, Lda, or its representative, determines that the equipment repair is covered by the warranty period and conditions, the costs of analysis, repair, and transportation back to the site will be the responsibility of Bright Blue, Lda or its representative.

If Bright Blue, Lda, or its representative, determines that the repair is not covered by the warranty clauses, for the reasons explained above, the repair will not be concluded until integral payment of the invoice has been issued. In this case, Bright Blue, Lda, or its representative, will send the customer an estimate of the diagnosis, repair, and transportation costs. The customer can order the return of the goods, without repair, in which case Bright Blue, Lda will issue an invoice of the diagnosis fee and dispatch costs. If the customer requires the repair, Bright Blue, Lda will charge the repair and transportation costs according to the estimate. The goods will be returned after full payment verification.

