

SANUS Compact



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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 SANUS pH controller, as it is one of the most advanced equipment of pH 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 SANUS model is supplied in a box containing the electronic controller, a dosing pump, a pH sensor and its holder and, optionally, a pH floating buoy.

5 Operation

In this chapter details the system's handling, operation and necessary adjustments.

The SANUS pH controller measures the water pH and acts to compensate it when the values are out of the defined range. The compensation can be activated or deactivated by the user through the menu ON/OFF.

The parameter regulation is done in the SETUP menu, where the user can define a pH reference value (set-point), the type of compensation liquid (acid/base) and the compensation and alarm triggers. When the SETUP and the CALIBRATION menus the system enters automatically in standby.

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

5.1 Front Panel



Figure 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:

- Left rotation allows menu change and decrease in one unit within a submenu;
- Right rotation allows menu change and increase in one unit within a submenu;
- Button pressing enters a submenu or accepts the set values;

6 Installation

The SANUS installation procedures are divided in two main steps: hydraulics and electrical components.

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 ventilation (avoid keeping the acid tank below any equipment since it promotes corrosion).

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

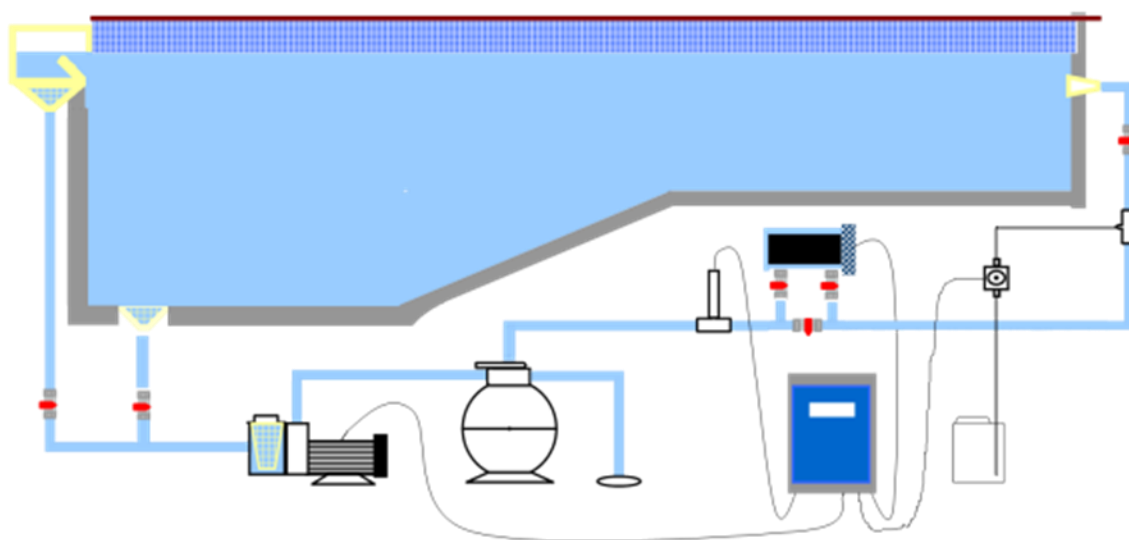


Figure 2- Hydraulics

6.1 Hydraulic Installation

6.1.1 Injection Point

The pH solution injection is the last element in the circuitry, just before de cut valve, as shown in Figure 2. The injector must be connected using a T with a 1/2" exit, or a clamp saddle with a 1/2" exit. The injection point is above or below the pump, according to the type of pump present, as shown in Figure 3 (see the pump manual for further instructions).

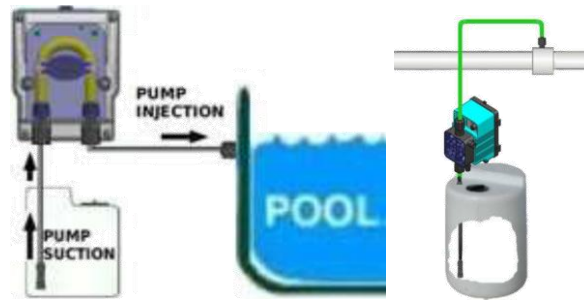


Figure 3 – Dosing Pump

6.1.2 pH Sensor

The placement of the pH sensor 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 2.

The sensor holder must be installed to ensure that the sensor is always vertical. If the sensor is not properly installed it will produce incorrect readings and shorten its life span.



Figure 4 – Sensor holder, clamp saddle and pH sensor

6.1.3 Dosing Pump

To install the dosing pump follow the instructions provided in its manual.

6.2 Electrical Installation

The cables needed for the electrical installation are provided with the equipment. Follow installation diagram supplied with the equipment.

7 First Operation

ATTENTION: The equipment should not be turned on without a proper ground connection. The SANUS 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 Menu

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.

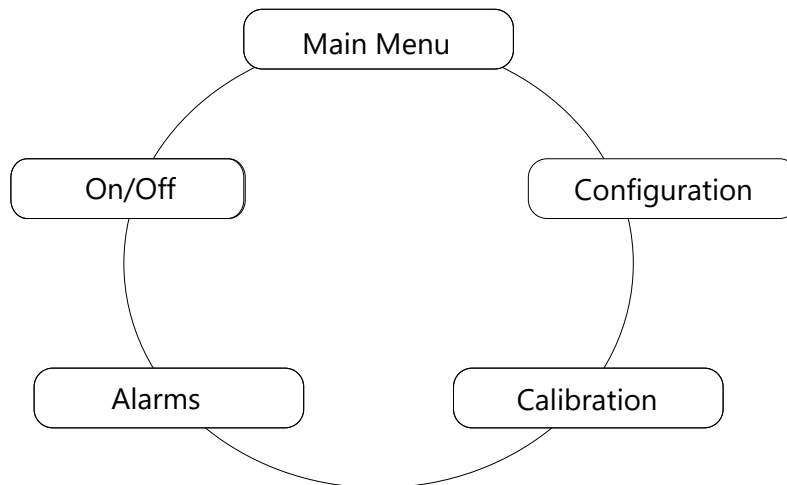


Figure 6 – Circular Menu Structure

8.2 Main Menu

The main menu shows the system status. In a normal situation, without activated alarms, the pH set-value is shown in the upper part of the screen and the type of pH solution and the current pH value are shown at the bottom.

S e t p o i n t : 7 . 1
p H - : 7 . 0

Figure 7 – Main Menu without Active Alarms

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

S e t p o i n t : 7 . 1
p H - : 7 . 0 A l a r m

Figure 8 – Main Menu with an Active Alarm

8.3 Menu On/Off

This is the menu used to switch the equipment on and off. When on, the equipment does the readings and pH compensation. When off the equipment will only do the readings and the dosing pump will remain inactive.

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.

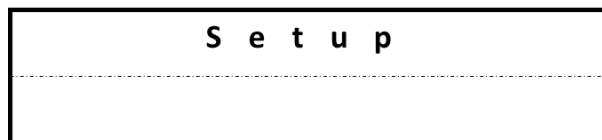


Figure 9 – Access to Setup Menu

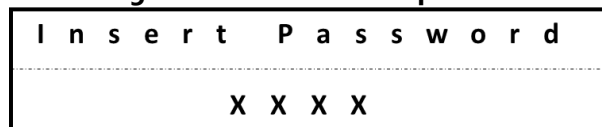


Figure 10 – Access to Setup Submenu

8.4.1 Setpoint Setup

This menu allows the adjustment of the pH setpoint. By default it is set to 7.1.

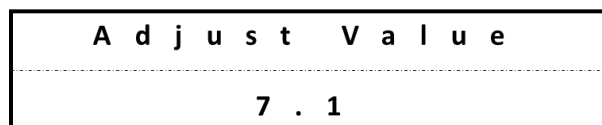


Figure 11 – Setpoint Setup

8.4.2 Limits Setup

Submenu to adjust the interval outside which the pH compensation is activated.

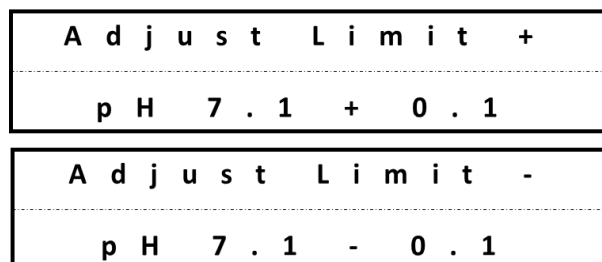


Figure 12 – Interval Setup

8.4.3 Alarm Setup

Submenu to adjust the pH interval outside which the alarms are triggered.

A d j u s t A l a r m +
p H 7 . 1 + 0 . 5

A d j u s t A l a r m -
p H 7 . 1 - 0 . 5

Figure 13 – Interval Setup

8.4.4 Timeout Alarm Setup

Submenu to adjust the time to deactivate the compensation procedure after the triggering of the Timeout Alarm.

A d j . p H T i m e o u t
T i m e o u t = 1 2 0 m i n

Figure 14 – Timeout Setup

8.4.5 Type of Compensation Solution

Submenu to define the type of compensation solution used: acid (pH minus/decrease) or base (pH plus/increaser).

L i q u i d T y p e
p H -

Figure 15 – Setup of Compensation Solution

8.4.6 Dosing Pump Priming

Submenu for pH dosing pump priming. Press the knob to start priming: when pressed, the pH dosing pump is switched on and the priming procedure begins. When finished press the knob again to stop the procedure.

P r i m i n g p H P u m p
P u m p O N

P r i m i n g p H P u m p
P u m p O F F

Figure 16 – Dosing Pump Priming

8.4.7 Change Password

Submenu to change or disable the predefined password. Press the knob to change the password; the X will start blinking, enter the current password, press the knob and enter the new password choosing the new digits by rotating the knob and then press it to finish the procedure.

C h a n g e P a s s w o r d
C u r r e t P a s s w o r d
X X X X
N e w P a s s w o r d
X X X X

Figure 17 – Password Change

To disable the password, proceed as indicated above and select 0000 as the new password. To return to the previous menu, select the position "Previous Menu" and press the knob.

8.5 Calibration Menu

The calibration menu allows the calibration of the pH sensor.

8.5.1 Importance of Calibrating

The SANUS equipment is delivered with an electrochemical sensor to do the pH readings. The sensor calibration is meant to translate the readings performed by the sensor to the system, so that it acts correctly and responds promptly only and every time it is necessary.

The SANUS software has been designed to assure an efficient calibration and this is the reason why it is a slow procedure!

8.5.2 When to Calibrate

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.

8.5.3 Who should perform the calibration

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

8.5.4 How to calibrate

Before initiating make sure you have every tool and material necessary at hand.

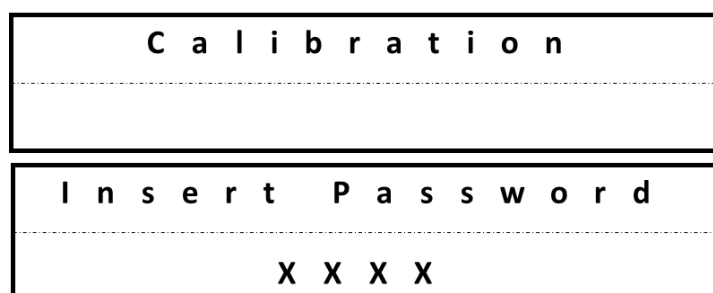


Figure 18 – Calibration Menu

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

8.5.5 pH Calibration

Necessary material:

- pH 4 buffer (supplied)
- pH 7 buffer (supplied)
- Wrench (for the sensor holder)
- Glass of drinking water

On entering the menu choose between “Use 2 Buffers” or “Adjust by DPD”. The first type will ask for the 2 buffer solutions supplied with the equipment. The second will calibrate with the readings from the digital photometer (DPD).

8.5.5.1 Using the 2 pH buffers

- Cut the water circuit that includes the sensor
- Remove the sensor from the holder
- Immerse the sensor in the glass of water and agitate it to clean
- Remove and shake to dry it
- Insert the sensor in the pH 4 buffer flask and press the knob
- Follow the instruction on the screen
- Wait until the reading stabilizes

- Remove the sensor from the buffer
- Immerse the sensor in the glass of water and agitate it to clean
- Remove and shake to dry it
- Insert the sensor in the pH 7 buffer flask and press the knob
- Follow the instruction on the screen
- Wait until the reading stabilizes
- Remove the sensor from the buffer
- Immerse the sensor in the glass of water and agitate it to clean
- Remove and shake to dry i
- Press OK to finish the process

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.

8.5.5.2 Adjustment by DPD

If you don't have the buffer solutions available, or if you sense these are not in good condition, you can proceed the calibration with the DPD photometer. Nevertheless, be aware that this process can increase the degree of error so you should always give preference to the calibration with the standard solutions.

Necessary material:

- DPD photometer
- Phenol Red Tablets

1. Remove a sample of the pool water as close as possible to the sensor
2. Make a blank reading with the sample without tablet
3. Insert the phenol red tablet and do the reading
4. Press the knob and wait as instructed on the screen
5. Insert the value given by the photometer by rotating and pressing the knob
6. Press the knob again to finish the process

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

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.

The system can indicate 3 types of alarm:

- "pH Fault" indicates that the pH reading is outside the limits defined in the setup menu;
- "Empty Tank" indicates that the pH solution tank is empty;
- "pH Timeout" indicates that the time of the equipment reaction to an unchanged reading was exceeded;

8.6.1 pH Fault Alarm

This alarm will occur when the pH value is outside the predefined limits. This alarm may be triggered when the compensation solution does not correspond to the indication, or that the pump is not well regulated, or that it is not primed, or it doesn't have the proper capacity for the pool volume.

Check if:

- the dosing pump is properly connected to the SANUS equipment
- the on/off button in the dosing pump is in on position (when applicable)
- the dosing regulation in the pump is correct
- the circuit breakers are all connected
- the dosing pump is properly primed
- the pH compensation solution is correct
- the valves are all in the correct position
- the filter is in the filtering position

8.6.2 Empty Tank Alarm

This alarm is triggered when the pH 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 if the buoy is fixed and placed in a perfectly vertical position.

8.6.3 pH Timeout Alarm

This alarm is triggered if the compensation is not having the right effect during the predefined period. If the pH reading is not sufficiently corrected, within the predefined time (120 min by default), once the pH compensation has begun, then the equipment will switch off the dosing pump and will trigger the alarm. This alarm will therefore indicate that either the pH sensor is not reading properly, or that the predefined period necessary for compensation to occur (depends on the pool volume) is not enough.

In case you see this alarm, please contact Bright Blue or a qualified 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 **SANUS** models.

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 water quality management equipment.
- Two years on the pH dosing pump
- One year for the probes (pH, ORP, Free Chlorine and Temperature) excluding wear out

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 regards 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.

