

SQCMINI 2 - PH CONTROLLER

USER MANUAL

ver. 1.2



Introduction

The water in the aquarium is a solution of various chemical compounds. Depending on their content, it has a different pH, we measure it with the pH factor, where $\text{pH} = 1$ is a strongly acidic solution, and $\text{pH} = 14$ is a strongly alkaline solution. The water of natural freshwater reservoirs usually has a pH in the range of 6.5 - 7.5 pH, while the salty waters of natural reservoirs have a pH in the range of 7.9 to 8.5. Additionally, in freshwater tanks, the selection of the right pH strongly depends on the biotope in the aquarium.

Fish and invertebrates are sensitive to rapid changes in the pH value, smooth changes in the daily cycle are something natural, they are caused by photosynthesis carried out by larger and smaller algae, in the morning we observe a lower pH than in the evening.

Measurement of the pH value with the use of chemical reagents usually gives an accuracy of 0.5 pH, which means that we may not be able to determine the pH with sufficient accuracy to obtain the optimal pH level in the aquarium (especially marine aquarium). Measurement with the "SQCmini 2" controller gives us a resolution of 0.001 pH and 0.005 pH accuracy, such high accuracy and resolution is needed due to the fact that pH is a logarithmic value and a change by one is equivalent to a thousand-fold change in the concentration of appropriate ions in the water.

Description of the SQCmini 2 controller

Description of properties and functions - general

- Has a built-in web server (WiFi).
- User interface - allows you to manage the controller using buttons and OLED display as well as remotely using any device with WiFi and a web browser (Smartphone, Tablet, Laptop, PC etc.).
- Possibility to log the controller into the local WiFi network (allows you to manage the controller from any WiFi device connected to the local network, and with appropriate configuration of the local network, also from any device connected to the Internet in the world).
- Simple menu, intuitive controller operation.
- Large, legible OLED display, characterized by high contrast and a much wider viewing angle compared to LCD and LED displays.
- Compact design with integrated power supply and control module (minimum connection cables).
- All configuration settings are stored in non-volatile memory and remain in memory even after power is turned off.
- User interface available in two languages Polish / English.

Description of properties and functions - pH

- Unique among computers and pH controllers, only found in laboratory devices, resolution (0.001 pH) and accuracy (0.005 pH) of measurements.
- pH Graph - visualizes pH measurements over time in a graph and table.
- Full automation of pH control and temperature monitoring.
- Calculates the average pH of the last 10 measurements, making it possible to observe the pH trend.
- The "SQCmini 2" pH controller allows a very accurate and stable measurement of the pH value. High accuracy and stability have been achieved, among others by the appropriate design of the device, the use of a modern RISC processor and a very accurate and stable (18 bit) external analog-to-digital converter.
- It has the ability to manually correct pH measurements, useful for checking calibration fluids, compared with other controllers, or for correcting the readings of older pH sensors.
- Enables setting of alarms for pH indications (upper and lower) with optical alarm signaling on the front panel.
- It has the ability to set pH control and alarms over the entire measuring range (0-14pH).

- Two operating modes (LOW / HIGH) for controlling when lowering and increasing the pH (freshwater and marine aquarium)
- Automatic calibration for 4pH, 7pH and 9pH values covering the range appropriate for freshwater and saltwater aquariums.

Description of properties and functions - Temperature

- Automatic temperature compensation for pH measurement.
- It has the ability to manually correct the measurements, enabling the accuracy of measurements of 0.1°C.
- Enables setting the alarms of temperature indications (upper and lower) with optical alarm signaling on the front panel.

Description of properties and functions - other

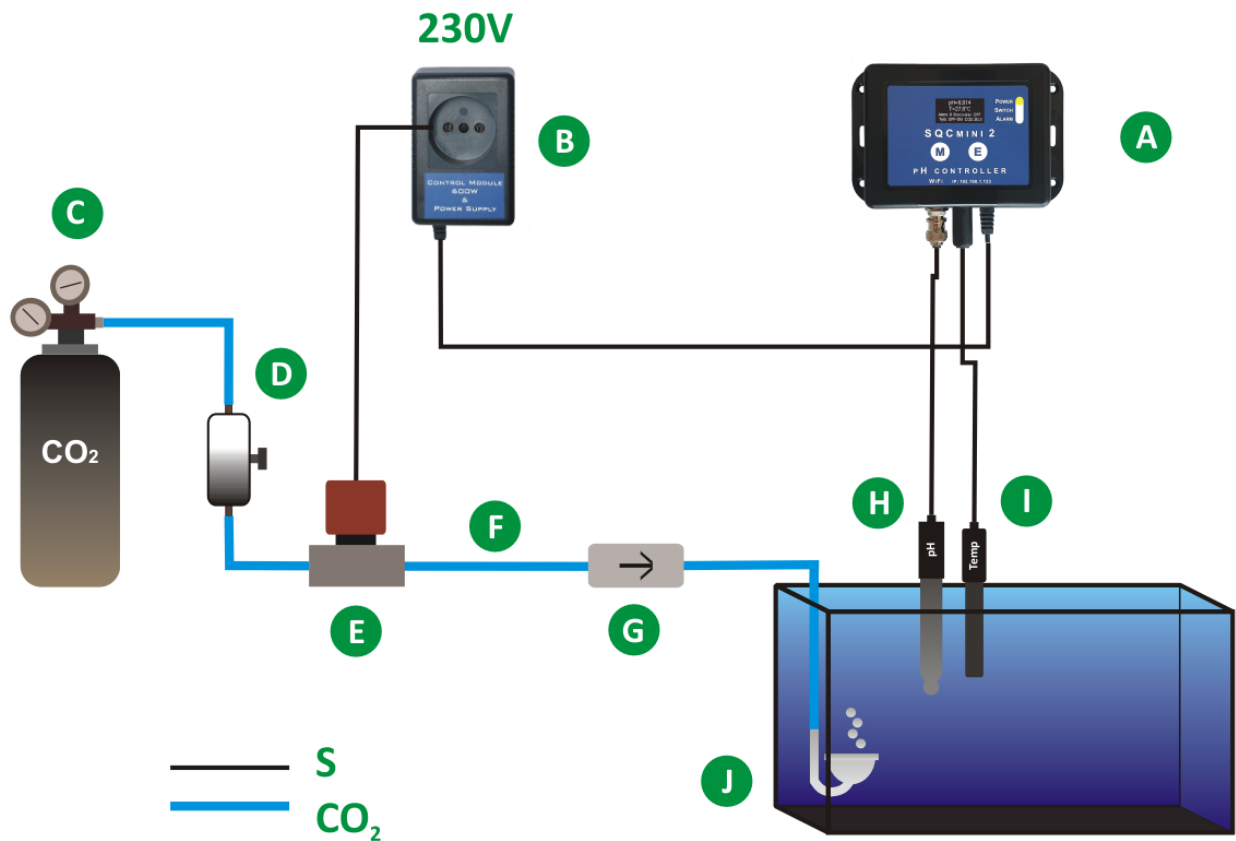
- Calculates the estimated CO₂ content in the water.
- Indicates a variety of alarms (see "alarm list" at the end of this manual) to help you diagnose your pH controller.
- Optical signaling of the control module operation.
- Possibility to restore the factory settings of the controller.
- Protection against the use of incorrect calibration fluids and against the use (calibration) of a damaged or worn pH probe.
- Access to the settings via the web interface is protected with a PIN set by the user.
- The ability to turn off the web server (cut off WiFi)
- Easy to attach using the side handles.

SQCMini 2 controller - front panel description



1. LED signaling.
2. The IP address of the embedded web server.
3. pH probe socket.
4. Temperature probe socket.
5. Control module with power supply.

An example of automatic control of CO₂ fertilization



- A. SQCmini 2 - pH controller.
- B. Control / power module.
- C. CO₂ cylinder with reducer.
- D. Precision valve.
- E. Solenoid valve.
- F. Flexible pipe (polyurethane) 4x6 mm.
- G. Anti-check valve.
- H. pH probe.
- I. Temperature probe.
- J. CO₂ diffuser.

Dane techniczne kontrolera pH

Technical Specifications	
Power	Integrated with the control module
Control output	Integrated with the control module
Measurement range	0-14 pH
Control range	0-14 pH
Calibration	Automatic two-point
Resolution of pH measurements	0.001 pH
Accuracy of pH measurements	0.005 pH
Hysteresis of pH measurements	Adjustable in scope 0.05 - 0.2 pH
Correction of pH indications	Adjustable in scope +/- 0.5 pH
Temperature measurement resolution	0.1 °C
Accuracy of temperature measurements	0.5 °C (possibility of calibration up to 0.1 °C)
Temperature readings correction	Adjustable in scope +/- 1.0°C
Carbonate hardness range KH	0-35 °N

Return to the factory settings of the configuration parameters of the "SQCmini 2" controller can be obtained by using the "DEFAULT" item in the Factory Settings (WWW) menu, or by activating the "Factory Settings" item in the (OLED) menu. The table below shows the default settings that are set after using this option.

Factory settings (default)	
pH calibration	b = 0 (pH7) a = 1 (pH4 i pH9)
pH correction	0
Temperature correction	0
pH mode	OFF-ON (LOW)
pH control	7.0 pH
pH hysteresis	0.1pH
High pH alarm	8pH
Low pH alarm	6pH
High temperature alarm	30 °C
Low temperature alarm	15 °C
WWW server	Switch on
SSID	SSID
Password	1234
Carbonate hardness	0 (no value entered)

SQCmini 2 - access authorization screen

In the WiFi settings of the smartphone, tablet or computer, select the "SQCmini 2" network to which we connect. Enter IP: 192.168.1.123 in the web browser and get to the authorization page.

The PIN in the factory settings has the value "1234", after entering the pin and checking its correctness "CHECK", press "NEXT" and go to the main window with main menu of the pH controller.

It is recommended to "Change PIN" at the first login.

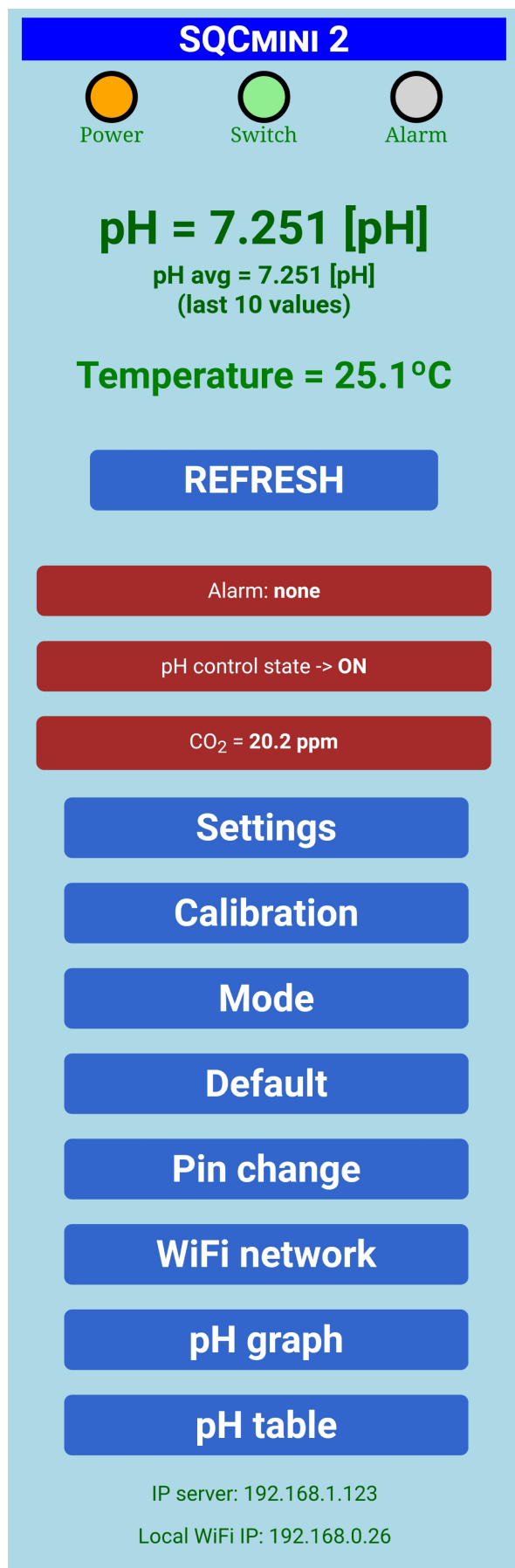
Change PIN

The "Change PIN" screen allows you to change the pin.

In case of loss of PIN please apply the following procedure. Hardware Factory Reset:

1. Disconnect the controller (remove the power supply from the mains socket).
2. Connect the controller power supply to the network, wait 3-5 seconds and disconnect the controller.
3. Again, plug the controller power supply into the network, wait 3-5 seconds and disconnect the controller.
4. The next power-up of the controller will result in a hardware reset of the settings, including restoring the pin to the default value, ie "1234".

SQCmini 2 - Controller menu



Indicators show the current status:

"Power" "Switch" "Alarm"

pH = 7.251 [pH] - current pH measurement since the last refresh.

pHavg = 7.251 [pH] (last 10 measurements) measurement of the average pH of the last 10 measurements, shows the trend of pH changes over time.

Temperature = 25.1 ° C - current temperature measurement since the last refresh.

REFRESH - Refreshes the pH and temperature reading.

Alarm: none - status of all current alarms, possible alarms are described in the table at the end of the manual.

pH control state -> ON (or OFF) - control status (e.g. solenoid valve): ON - enabled, OFF - disabled.

CO₂ = 20.2 ppm - estimated CO₂ content in water, detailed description later in the manual.

Settings - entering the pH controller settings.

Calibration - entering the pH probe calibration menu.

Mode - selection of the operating mode of the pH controller (increases or decreases the pH).

Factory Defaults - restores all settings to the default settings.

Change PIN - allows you to change the pin.

WiFi network - allows you to change the name of the local WiFi network and password.

pH Chart - Graphical visualization of pH changes over time.

pH table - pH measurements over time.

IP server: 192.168.1.123 - fixed address of the server embedded in the pH controller.

Local WiFi IP: 192.168.0.26 - address assigned to the controller by the local WiFi network (router).

Parameter settings of the pH controller

High pH alarm - Exceeding the alarm value activates the alarm visible on the home page. The "Alarm" indicator on the front of the controller housing will also be activated.

Low pH alarm - Exceeding the alarm value activates the alarm visible on the home page. The "Alarm" indicator on the front of the controller housing will also be activated.

High Temp. alarm - Exceeding the alarm value activates the alarm visible on the home page. The "Alarm" indicator on the front of the controller housing will also be activated.

Low Temp. alarm - Exceeding the alarm value activates the alarm visible on the home page. The "Alarm" indicator on the front of the controller housing will also be activated.

pH control - pH value after which the controller will turn on or turn off the control depending on the LOW / HIGH mode set. For an explanation of how each mode works, see "pH measurement mode".

Hysteresis pH - the value of the pH range in which the pH is kept constant, a description of the operation can be found in the "pH measurement mode" section.

pH correction - enables manual positive or negative correction of the pH indication.

Temp. correction - enables manual positive or negative temperature correction.

KH (°N) - enter the value of the carbonate hardness in German degrees (the hardness is measured e.g. with drop tests).

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SETTINGS

High pH alarm	8.00
Low pH alarm	6.00
High Temp. alarm	30.0
Low Temp. alarm	15.0
pH control	7.00
Hysteresis pH	0.10
pH correction	0.00
Temp. correction	0.00
KH (°N)	6.00

SAVE

Return

Water CO₂ indicator

The CO₂ value shown on the main page is calculated on the basis of the current pH measurement and the KH value (in German degrees) given in the settings, acc. To pattern:

$$CO_2 = 3 * KH * 10^{7-pH} \text{ [ppm]}$$

pH probe calibration

SQCmini 2

CALIBRATION

solution 4 pH ☐

solution 7 pH ☒

solution 9 pH ☐

CALIBRATE

a = 1.02 b = -0.09

Return

When calibrating and measuring with a pH probe, remember to condition the probe membrane by immersing it for 24 hours before calibrating it in water (e.g. in an aquarium) or in a saturated KCl solution.

The calibration of the pH probe takes place in two steps. The first step is to set the correct 0 point for the pH probe, immerse the probe in the pH 7 calibration fluid, wait a few minutes until the results of the probe measurements stabilize, go to the "Calibration" menu of the controller (view opposite), select the "solution 7 pH" option and press "CALIBRATE", this process may take up to several dozen seconds and the "a", "b" factors will be changed.

The second step is to correctly set the slope of the pH characteristic, immerse the probe in the calibration liquid 9 pH (or 4 pH) (after rinsing the probe with distilled water) wait for a few minutes until the results of the probe measurements stabilize, go to the "Calibration" menu on the controller (view opposite), select the options "pH 4 solution" or "pH 9 solution" and press "CALIBRATE", this process may take up to several dozen seconds and the "a", "b" factors will be changed.

The computer has protection against probe calibration in the wrong calibration fluid by limiting the calibration range, this protection also allows you to eliminate the use of a damaged probe. The protection consists in calibrating the probe only when the deviation of the probe measurement without calibration does not exceed +/- 1pH. (For example, if the measurement with the probe before calibration in a liquid pH 7 shows 6.2 pH, the probe will be properly calibrated, while if the measurement before calibration shows 5.9 pH, the calibration process will be skipped - the probe will not be calibrated).

A calibration error occurs.

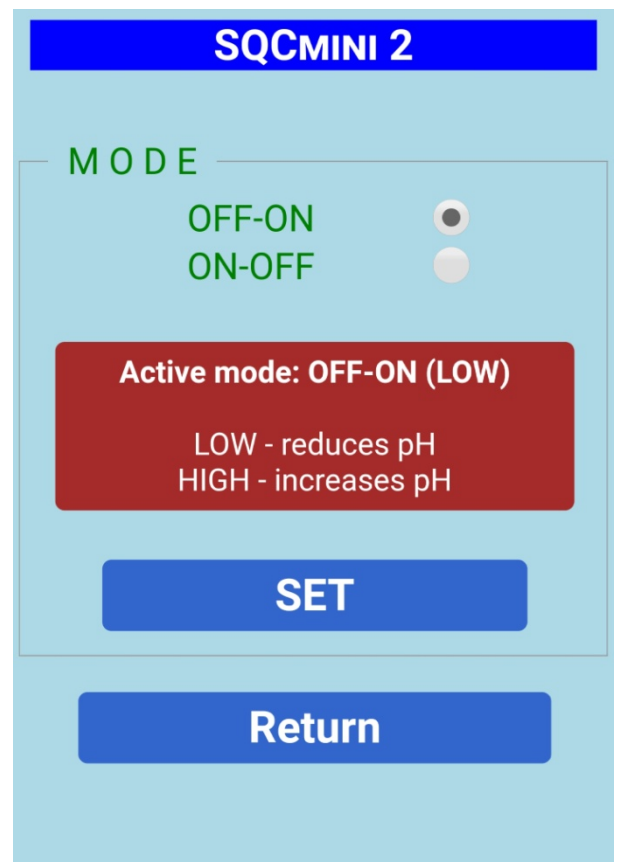
pH control mode

We can choose one of the two controller operating modes "OFF-ON (LOW)" and ON-OFF (HIGH).

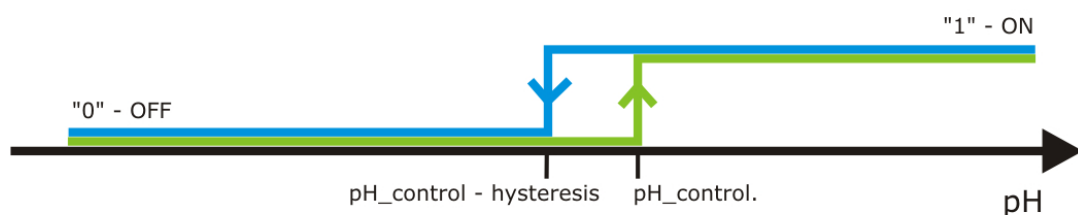
We use the LOW mode to lower the pH, e.g. when using CO₂ to fertilize plants. The value of the pH parameter is controlled by switching on the CO₂ dosing (solenoid valve) after the pH exceeds the set value and switching off the CO₂ dosing when the set value minus the hysteresis value is reached (factory setting - LOW).

The HIGH mode is used to maintain the lower pH limit, it can be used to raise the pH value.

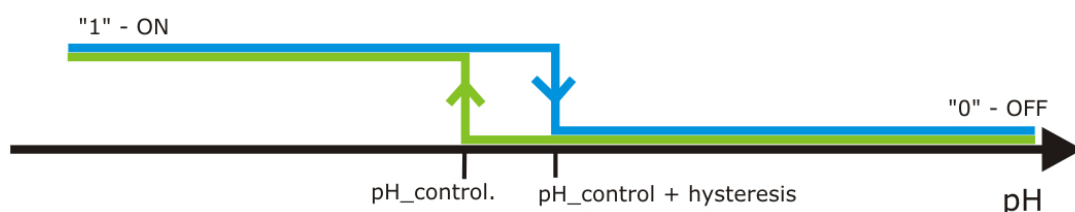
It is recommended that the hysteresis is not set below 0.1 pH at the beginning of setting the proper operating parameters, it may lead to an increase in the switching frequency of the solenoid valve.



Mode = 0 (**OFF-ON**) - **LOW** pH
The mode used to lower the pH when it rises too much.



Mode = 1 (**ON-OFF**) - **HIGH** pH
The mode used to raise the pH when it drops too much.



Factory settings

The screenshot shows the 'Factory Settings' screen of the SQCMINI 2 device. At the top is a blue header with the text 'SQCMINI 2'. Below this, the title 'DEFAULT SETTINGS' is displayed in green. The screen contains two blue buttons: 'DEFAULT' and 'Return'.

"DEFAULT" - restores the factory settings of the controller.

NOTE: restoring the factory settings also changes the login parameters to the local WiFi network to "default" (SSID / 1234), which will disconnect the controller from the web server and the need to log the controller back into the local WiFi network.

WiFi network

The screenshot shows the 'WiFi network' configuration screen of the SQCMINI 2 device. At the top is a blue header with the text 'SQCMINI 2'. Below this, the title 'WiFi net' is displayed in green. The screen contains two input fields: 'SSID' and 'Password'. Below the 'Password' field is a checkbox labeled 'AP disable' which is checked. There are two blue buttons: 'LOGIN' and 'Return'.

SSID - name of the WiFi network to which we want to log in.

Password - password for this network.

After saving the data, the controller will try to log into the local WiFi network, it may take up to 10 seconds, therefore it may take a while longer to return to the main page. After successfully logging into the network, the IP address assigned by the router (local WiFi network) will appear on the home page. By entering the given address in the web browser of any device connected to the local network, you will be able to manage the pH controller (without the need to log into the web server built into the pH controller).

Selecting the "AP disabled" option while logging in will disable the web server address (IP address 192.168.1.123 will be unavailable). The SQCmini 2 computer will work in the mode of a client logged in to the local WiFi network, the IP address that needs to be entered into the browser will be available on the computer's OLED display (SCREEN 3 - press the 'E' button twice).

Re-logging without selecting the "AP disabled" option will re-enable the server mode and the address 192.168.1.123 will be available.

The special configuration of the local network router will allow access to the controller from all over the world.

Information on how to do this can be obtained from your local internet provider.

NOTE: changing the login parameters from a device connected to the local network (Local WiFi IP) will disconnect the controller from the web server.

pH graph and table

The graphical visualization of pH changes over time shows a graph of pH versus time from now to 12 selected periods backward. In a 1 minute period, we can see a change in pH over the last 12 minutes, and so on, up to a 4 hour period where we can see a change in pH over the last 48 hours.

The pH chart can be viewed in three different scales, selecting them depending on the dynamics of pH changes in a given period.

On the page with the pH table, we have measurements at each point shown in the graph, due to the very high resolution of the measurements, distinguishing individual points on the graph may be very difficult, hence the measurement values assigned to individual points are also placed in the table.

SQCMini 2

pH graph

Period

1 minute

☐

5 minutes

☐

30 minutes

☐

1 hour

☐

2 hours

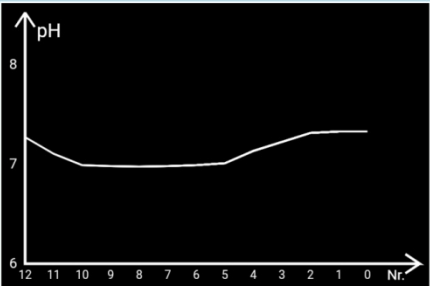
☐

4 hours

☐

CHOOSE

pH measurement period: 1 min.



scale 6-8 pH

scale 5-9 pH

scale 0-14 pH

Return

CAUTION:

- when the power is turned off, the measurements in the table and on the chart are deleted, the data collection process starts again.

- disconnecting the pH probe causes an unstable state at the input of the measurement circuit, which may cause erroneous readings of the pH value or the appearance of the "ERROR" measurement value. In the event of an error indication (ERROR), data collection is stopped.

In the case of disconnecting the pH probe from the computer for a long time (exceeding the period of pH measurements that we want to see in the graph), it is best to turn off the power for a moment by resetting the measurements.

When we want to keep a chart or table, we can take a screenshot, "printscreen".

SQCMini 2

pH table

Period

1 minuta

☐

5 minutes

☐

30 minutes

☐

1 hour

☐

2 hours

☐

4 hours

☐

CHOOSE

pH measurement period: 1 min.

Nr.	pomiar pH	Okres czasu
0	7.326	teraz
1	7.325	-2 godz.
2	7.311	-4 godz.
3	7.220	-6 godz.
4	7.133	-8 godz.
5	7.007	-10 godz.
6	6.986	-12 godz.
7	6.977	-14 godz.
8	6.974	-16 godz.
9	6.980	-18 godz.
10	6.988	-20 godz.
11	7.102	-22 godz.
12	7.269	-24 godz.

Return

SQCmini 2 - Description of the WiFi network configuration

Server IP: 192.168.1.123
Local WiFi IP: 192.168.x.x



Smartfon



Router



Laptop



Server IP: 192.168.1.123

Local WiFi IP: 192.168.x.x

Measurement of pH and temperature

All parameters can be measured continuously 24 hours a day. After calibrating, place the pH probe in the aquarium, shake the probe slightly to get rid of the air bubbles, wait 1-2 minutes for the measurement to stabilize and read the result. The temperature probe is factory calibrated with an accuracy of $\pm 0.5^{\circ}\text{C}$, by correcting the temperature indications in relation to the standard, we can get the accuracy of 0.1°C .

Installation of the pH and temperature probe

The pH and temperature sensors should be placed in the main aquarium, in the filter or in the auxiliary aquarium, generally anywhere in the closed water circuit. In order to avoid incorrect measurements, the pH sensor should not be placed near the aeration devices due to air bubbles that may affect the accuracy of measurements, the sensor should not be completely immersed in water (the signal cable with the "cap" should protrude above the surface water).

The temperature probe should not be placed in the immediate vicinity of heat sources such as a heater, circulation pump motor or internal filter impeller.

Before inserting the pH probe into the aquarium, gently remove / unscrew the protective cap.



Protective cap to be removed



How to use the pH probe

Before starting the measurements, the pH sensor should be conditioned by immersing the sensor (electrode membrane) in water or in a saturated KCl solution for a period of 24 hours. Before starting measurements or calibrations, the electrode (membrane) should be rinsed with distilled water.

In the case of frequent measurements, the electrode membrane should be stored in distilled water or in a saturated KCl solution. However, during longer breaks, the electrode can be stored dry in the factory packaging after rinsing with distilled water.

In the event of a significant loss of electrolyte, if it is possible, replace it with a special gel adapted to replenish the pH electrodes operating continuously. Electrode parts: cable and BNC plug should be protected against moisture.

pH probe calibration (OLED)

When calibrating and measuring with a pH probe, also remember to condition the probe membrane by immersing it for 24 hours before calibrating it in water or a saturated KCl solution.

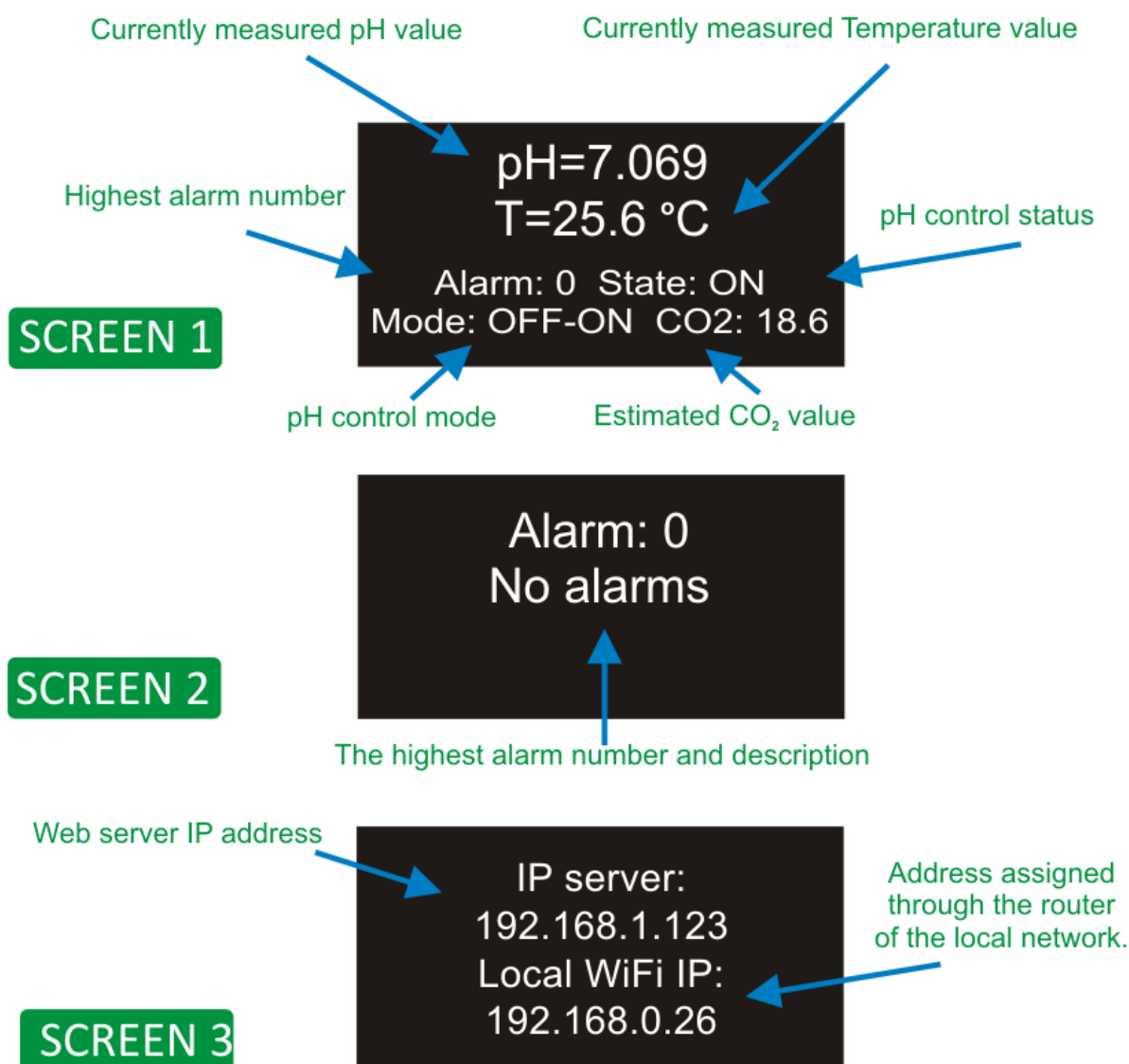
The calibration of the pH probe takes place in two steps. The first step is to set the correct 0 point for the pH probe, immerse the probe in the pH 7 calibration liquid, wait a few minutes until the probe measurement results stabilize, then search for the pH7 calibration options in the computer menu and press OK, this process can take up to several dozen seconds.

The second step is to correctly set the slope of the pH characteristic, immerse the probe in the calibration liquid 9 pH (or 4 pH) (after rinsing the probe with distilled water) wait a few minutes until the probe measurement results stabilize, then search for options in the Computer menu calibrate pH9 or pH4 and press OK, this process may take up to several tens of seconds.

The computer has protection against probe calibration in the wrong calibration fluid by limiting the calibration range, this protection also allows to eliminate the use of a damaged probe. The protection consists in calibrating the probe only when the deviation of the probe measurement without calibration does not exceed ± 1 pH. (For example, if the measurement with the probe before calibration in a liquid pH 7 shows pH 6.2, the probe will be properly calibrated, while if the measurement before calibration shows pH 5.9, the calibration process will be skipped - the probe will not be calibrated and calibration error occurs.)

pH measurement, alarms, operating mode, controller status (OLED).

All parameters can be measured continuously 24 hours a day. After calibrating, place the pH probe in the aquarium, shake the probe slightly to get rid of the air bubbles, wait a few minutes for the measurement to stabilize and read the result. In addition to the pH indication on the OLED display, we have the temperature reading, alarm number, control status, operating mode and CO2 value (SCREEN 1), while after switching to SCREEN 2 (button E) we have detailed information about the alarm Alarm: 0 - no alarm, Alarm: n - is the alarm with the number "n" (the highest number of the active alarm), and in the second line we have the description of the alarm (the list of all active alarms at a given moment can be seen in the web interface). SCREEN 3 shows the configuration (IP addresses) of the WiFi network.



Changing display **SCREEN 1** / **SCREEN 2** / **SCREEN 3**
is followed by pressing the "E" button

SQCmini 2 - Controller Menu (OLED)

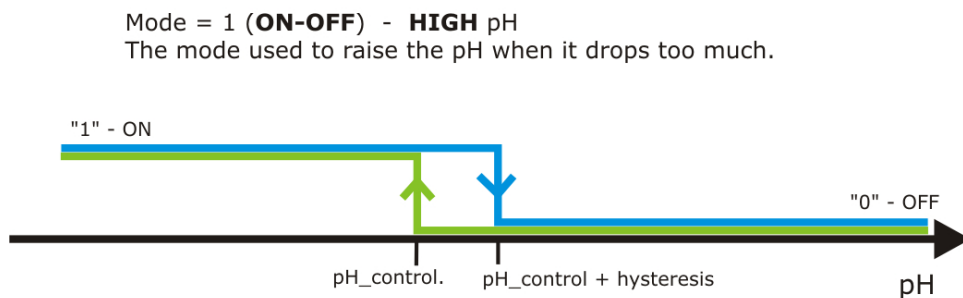
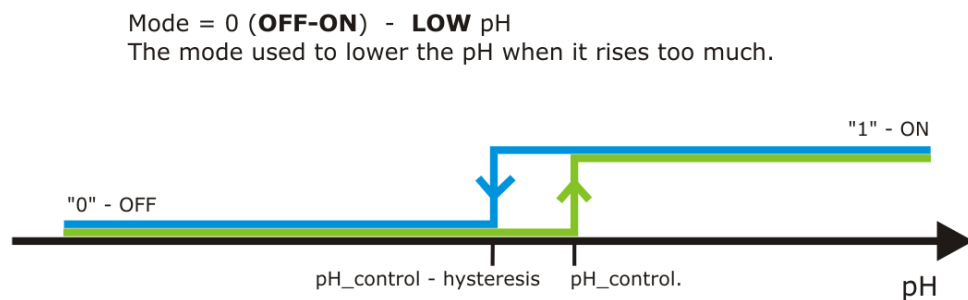
High pH alarm	High pH alarm < 8.00 >	1
Low pH alarm	Low pH alarm < 6.00 >	2
Calibration 4 pH	Calibration 4 pH wait...	3
Calibration 7 pH	Calibration 7 pH wait...	4
Calibration 9 pH	Calibration 9 pH wait...	5
Hysteresis pH	Hysteresis pH < 0.10 >	6
pH correction	pH correction < 0.00 >	7
pH control	pH control < 7.00 >	8
pH control mode	pH control mode < OFF-ON >	9
Default settings	Default settings wait...	10
KH (°N)	KH (°N) < 0.00 >	11
Temperature correction	Temperature correction < 0.00 >	12
High Temp. alarm	High Temp. alarm < 30.0 >	13
Low Temp. alarm	Low Temp. alarm < 15.0 >	14
WWW server	WWW server < enable >	15
Język/Language	Język/Language < english >	16
Exit		

1. Set the high pH alarm value.
2. Set the low pH alarm value.
3. 4 pH liquid calibration.
4. 7 pH liquid calibration.
5. 9 pH liquid calibration.
6. Set the pH control hysteresis value.
7. Set the manual correction value for pH measurements.
8. Set the pH control value.
9. Set the operation mode of the controller.
10. Reset all settings to their default values.
11. Set the water hardness value in German degrees.
12. Set the value of manual correction of temperature measurements.
13. Set the high temperature alarm value.
14. Set the low temperature alarm value.
15. Enable / Disable the web server (WiFi interface).
16. Set menu language.

pH value control (OLED).

The pH parameter value is controlled by switching on the CO2 control (solenoid valve) when the pH exceeds the set value and switching off the CO2 control at the moment of reaching the set value minus the hysteresis value (factory setting - LOW). The HIGH setting can be used to raise the pH value. Active (solenoid valve on) control is signaled on the screen no. 1 "State: ON" and the luminous indicator visible on the panel next to the OLED display window and marked "Switch" ", the lit indicator is clearly visible from a distance.

It is recommended that the hysteresis should not be set below 0.1 pH, as a lower value may cause the solenoid valve to activate frequently.



pH and temperature too high alarm (OLED).

The options in the menu "High alarm pH / Temperature" and "Low alarm pH / Temperature" allow you to set the maximum (high) and minimum (low) alarm values for the measured pH and temperature value. Alarms are signaled on the screen no. 1 "Alarm: n" and a luminous indicator visible on the panel next to the OLED display window and marked "Alarm", the lit indicator is clearly visible from a distance.

Alarm list

Nr.	Alarm	Reasons / Action
1	No pH probe	Measurement outside the range (0-14) pH. <i>No pH probe connected, or damaged probe connection.</i>
2	Configuration error pH alarms	Attempts to set a low alarm are above the high alarm limit. <i>The high alarm threshold must be higher than the low alarm.</i>
3	pH too low	The pH measurement is lower than the declared lower alarm threshold. <i>Water parameters should be corrected.</i>
4	pH too high	The pH measurement is higher than the declared upper alarm threshold. <i>Water parameters should be corrected.</i>
5	No Temperature probe	No temperature probe. <i>Temperature probe is not connected or damaged.</i>
6	Temperature too low	The temperature measurement is lower than the declared lower alarm threshold. <i>Water parameters should be corrected.</i>
7	Temperature too high	The temperature measurement is higher than the declared upper alarm threshold. <i>Water parameters should be corrected.</i>
8	Calibration error pH4 (pH7/pH9)	- wrong calibration solution selection. <i>Repeat the calibration with the correct calibration solution.</i> - pH probe outside the permitted calibration range, which is +/- 1 pH for each calibration value. For pH7 (from 6pH to 8pH), for pH4 (from 3pH to 5pH), for pH9 (from 8pH to 10pH). <i>Replace the pH probe with a new one (restricting the calibration range is to eliminate the use of damaged or worn pH probes).</i> This alarm can be cleared by a correct calibration or a factory reset (DEFAULT).
9	Configuration error temperature alarms	The attempt to set a low alarm is above the high alarm limit. <i>The high alarm threshold must be higher than the low alarm.</i>

Problemy

Lp.	Objawy	Przyczyny
1	Częste nieskoordynowane skoki wskazania pH	Sonda jest nie podłączona albo jest podłączona niewłaściwie, należy sprawdzić czy sonda jest podłączona właściwie do gniazda. Wolniejsze „falowanie” pomiarów może wskazywać na zużycie się sondy.
2	Brak zapalonej kontrolki zasilania.	Brak napięcia 230V w sieci, przepalony bezpiecznik w zasilaczu, uszkodzony zasilacz lub uszkodzony przewód łączący zasilacz z kontrolerem - Konieczny kontakt z serwisem.
3	Ewidentnie złe odczyty (np. wskazanie 8 pH w wodzie destylowanej)	Sonda jest zabrudzona albo zużyta, należy wyczyścić sondę i sprawdzić jej termin przydatności do użycia (sondy powinny być używane około 1 roku) – w razie konieczności wymienić sondę.
4	Problem z poprawnym wyświetleniem strony WWW - strona nie ładuje się cała, lub utrata komunikacji z serwerem WWW komputera, strona "zawiesza się".	W przypadku korzystania z lokalnego routera WiFi przyczyną może być zbyt duża odległość pomiędzy komputerem "SQCmini 2" a routerem lub istotne przeszkody pomiędzy nimi, podobnie jak w przypadku bezpośredniego połączenia pomiędzy np. Smartfonem a komputerem "SQCmini 2".
5	I cannot log in to the address: 192.168.1.123	Check if the web server is turned on (OLED menu). Check on DISPLAY 3 that the server mode ("Server IP: No Network") has not been turned off. You must enable the web server and / or log into the network without selecting "AP disabled". You can also restore the default settings "DEFAULT".

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