

Operating and installation manual



NATURALLY SALT

by  BAYROL

Content

1	General safety instructions	3	4.5.4	Reset settings	24
2	Content of the packaging	4	4.5.5	Reset counters.....	24
3	Installation	4	5	pH option	24
3.1	Wall installation.....	5	5.1	Scope of delivery, pH option.....	25
3.2	Electrical connection.....	5	5.2	Installing the pH module.....	25
3.2.1	Supply via the filter control.....	5	5.3	Installing the pH electrode.....	25
3.2.2	Salt Relax PRO as filter control.....	6	5.4	Installing the pump and injection nozzle.....	25
3.3	Connecting the chlorine production cell.....	6	5.5	Settings on the device.....	26
3.4	Connecting the temperature sensor.....	6	5.5.1	Set point pH.....	26
3.5	Installation diagram.....	7	5.6	Calibrating the pH electrode.....	27
3.6	Installing the additional flow switch.....	8	5.6.1	2-point calibration with the two buffer solutions provided (pH 7 and pH 10).....	27
3.7	Earthing.....	8	5.6.2	1-point pH calibration.....	28
3.8	Setting the water.....	8	6	Redox option	29
3.8.1	Water chemistry.....	8	6.1	Scope of delivery, redox option.....	29
3.8.2	The right salt.....	9	6.2	Installing the Redox module.....	29
3.8.3	Calculating the pool volume.....	9	6.3	Installing the redox electrode.....	29
3.8.4	Calculating the amount of salt to add.....	9	6.4	Redox setpoint.....	29
3.9	Adding the salt to the pool.....	9	6.4.1	Determining the redox setpoint.....	29
4	Operating the Salt Relax PRO	10	6.4.2	Setting the redox setpoint on the device.....	30
4.1	Main screen.....	10	6.4.3	1-point redox calibration.....	30
4.2	Quick access to salt electrolysis.....	10	7	Description of the device	31
4.3	The main menu.....	11	7.1	Connections and fuses on the Salt Relax PRO.....	31
4.3.1	Filtration.....	11	7.2	Removing the housing front cover.....	32
4.3.2	Lighting.....	13	7.3	Replacing the battery.....	32
4.3.3	Auxiliary relays (Aux Rel1, Aux Rel2 Aux Rel3, Aux Rel4).....	14	7.4	Installing a cable grommet.....	33
4.3.4	pH calibration / redox calibration / setpoint.....	15	7.5	Installing the pH and redox module.....	33
4.3.5	Temperature calibration.....	15	7.6	Connecting terminals.....	34
4.3.6	Electrolysis.....	16	8	Troubleshooting and fault elimination	35
4.4	Settings menu.....	17	9	Maintenance	37
4.4.1	Language.....	17	9.1	Cell cleaning.....	37
4.4.2	Time.....	17	9.2	General maintenance.....	37
4.4.3	Screen.....	17	9.3	Cleaning.....	37
4.4.4	Sound.....	18	9.4	Replacing the dosing pump hose.....	38
4.4.5	Password.....	18	10	Taking out of service for the winter	38
4.4.6	Cell hours.....	18	11	Decommissioning	38
4.4.7	System info.....	18	12	Technical Data	39
4.4.8	Service menu.....	18	13	Warranty	40
4.5	Service menu.....	19	14	EC Declaration of Conformity	41
4.5.1	Relay configuration.....	19			
4.5.2	Service settings.....	21			
4.5.3	Extra settings.....	23			

1 General safety instructions

This operating manual contains important information which must be observed during installation, commissioning, operation and servicing. This operating manual must therefore be read by the installation engineer and the operator of the device prior to installation and commissioning and must be kept in a location where it is accessible to all users.

Sensitive settings are correspondingly marked, and such settings may only be made by a specialist with both in-depth knowledge of swimming pool construction and in-depth knowledge of the installation of electrical and electronic devices.

Compliance with all other safety instructions in this document is also mandatory.

Read and follow all instructions.

To minimise the risk of injury, do not allow children to use this product.

Failure to follow the safety instructions may result in danger to persons, the environment and the device itself. Failure to observe the safety instructions will also lead to the forfeiture of claims for damages and loss of warranty.

The Salt Relax PRO is intended exclusively for use in private swimming pools.

2 Content of the packaging



DANGER!

Danger resulting from inadequate qualification of personnel/service technicians/installation technicians. Possible consequences are serious or even fatal injury and severe damage to material assets. The following conditions therefore apply:

- The operator of the plant must ensure that personnel are adequately qualified.
- All tasks must be performed exclusively by correspondingly trained personnel.
- The system must be protected against access by persons who are not adequately qualified, e.g. by means of access codes and passwords.



IMPORTANT!

The operator of the plant must ensure compliance with the relevant accident prevention regulations, other legal provisions and the generally accepted rules of safety engineering!

2 Content of the packaging



- 1 Salt Relax PRO
- 2 Temperature sensor
- 3 Cable grommets
- 4 Installation material
- 5 Reducer 75-50 mm
- 6 Chlorine production cell (cell and housing)
- 7 Salt Quicktest
- 8 Holder for temperature sensor
- 9 Holder for paddle switch and pH/redox electrodes (optional)
- 10 Plugs
- 11 Paddle switch

3 Installation



NOTE!

Ensure that all components of the pool system which may come into contact with the pool water are resistant to salt water. In particular, make sure that the filtration pump is resistant to salt water.

Note that even water with a low salt content can be corrosive, and take this into account when selecting components for use (e.g. steel ladders etc.).



Necessary qualification:

The Salt Relax PRO must be installed by a specialist with both in-depth knowledge of swimming pool construction and in-depth knowledge of the installation of electrical and electronic devices!



Danger caused by electrical current

The Salt Relax PRO is live as soon as voltage is applied to the power input. The chlorine production cell or additional functions may be switched on or switched over. Contact with live components can lead to an electric shock.

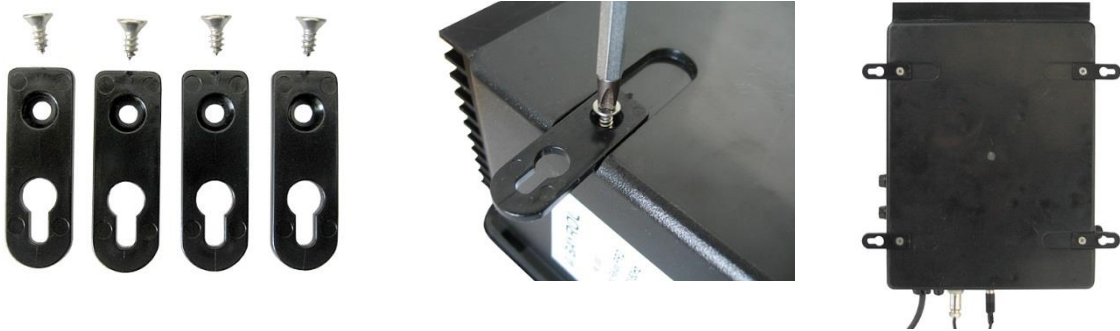
This may result in serious or even fatal injury and damage to material assets, and the following therefore apply:

- All such tasks must be carried out exclusively by adequately trained and experienced personnel!
- The device must always be de-energised before performing installation and maintenance work on it!
- Secure the device against being switched on while work is being performed on it!
- Additional modules must be installed/removed in de-energised state!
- Cables must also be connected in de-energised state!
- A safety feature which is independent of the device should always be present!
- Where necessary, password protection for the main menu must be activated!
- The relevant country-specific safety regulations must be complied with!
- All safety features and protective devices must be refitted or rendered functional again immediately after completing work!
- Failure to follow the safety instructions can cause the device to malfunction, may lead to the risk of fatal injury and renders the warranty invalid!

3.1 Wall installation

Notes on installation:

- The device must be mounted on a flat, vertical surface protected against moisture.
- There must be adequate free space around the device to allow correct operation and maintenance of the device. It must be possible to remove the front cover of the device.
- A space of at least 20 cm below and to the side of the device is required for routing cables.
- A wet room Schuko socket with continuous current is required at a distance of not more than 1.5 m.
- All cables must be routed without kinks and chafing points.
- Avoid exposure to direct sunlight, heat radiation, frost and moisture. Ensure adequate ventilation.
- No live cables, contactors, electric motors etc. in the immediate vicinity.
- The installation location should be as close as possible to that of the chlorine production cell (note cable length).
- The Salt Relax PRO with the mounted holders can be used as a template for drilling by holding it up against the mounting location and marking the position of the drill holes on the wall.



3.2 Electrical connection

The Salt Relax PRO has been designed and constructed according to the applicable regulations. It was carefully inspected before leaving the factory and left the factory in a safe and technically flawless condition.

The equipment can only be operated safely if all of the instructions contained in this manual are followed.

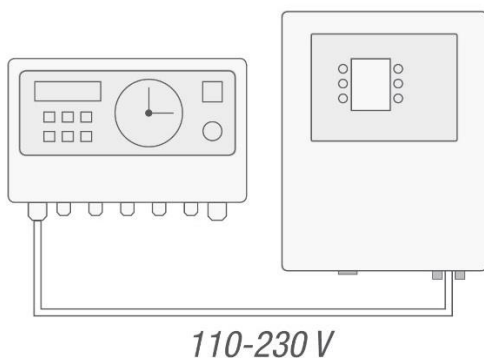
The supply voltage for the device must not exceed 110 - 240V/60 Hz. The permissible operating temperature range is from 0 to 50 °C, the permissible humidity level 0-90 %.

As is standard practice for electrical connections, ensure that all plug-in connections and cable grommets are protected against water.

3.2.1 Supply via the filter control

If the Salt Relax PRO is activated via an external timer (e.g. filter control), it must be ensured that the circulating pump and the Salt Relax PRO are precisely synchronised. The Salt Relax PRO must be switched off if there is no flow of water.

Make sure that the external timer (e.g. filter control) meets the performance requirements of the Salt Relax PRO!



3 Installation

In order to supply the Salt Relax PRO with power via a filter control as shown in the diagram above, the mains power plug supplied can be dismantled as shown below.



Attention:

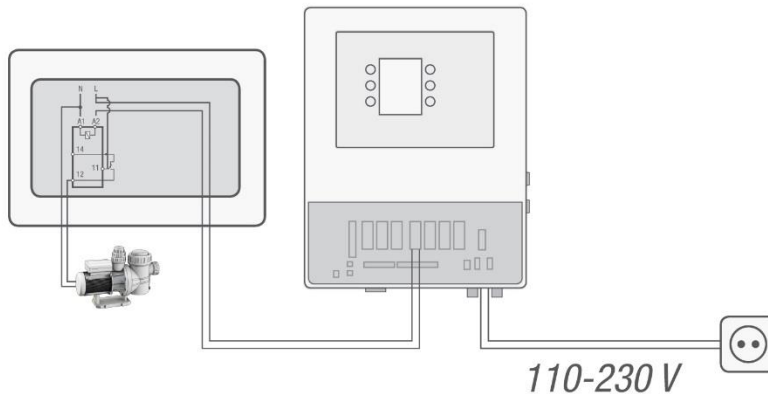
Connection of the Salt Relax PRO in this way must be performed by a specialist technician with in-depth knowledge of the installation of electrical and electronic devices!

When connecting the power supply cable of the Salt Relax PRO to the filter control, it is imperative to follow the instructions (connection diagram) provided with the filter control.

3.2.2 Salt Relax PRO as filter control

As standard, the Salt Relax PRO can be used as a controller for the filtration pump; please refer to the section Filtration. In this case, the mains power plug of the device is connected to a water-protected mains socket with a 30 mA residual current circuit breaker.

See also the information in the chapters Filtration, Configuration and Connecting terminals.



3.3 Connecting the chlorine production cell

When connecting the cell supply cable to the control unit, make sure that the cable is inserted firmly at the points provided, with no loose contact. The cap nut of the plug-in connection must be securely tightened. If this is not the case, there is a risk of overheating at this connection.

Also insert the second, thinner cable (gas flow sensor) of the chlorine production cell carefully into the connection point provided (see Connections and fuses on the Salt Relax PRO).

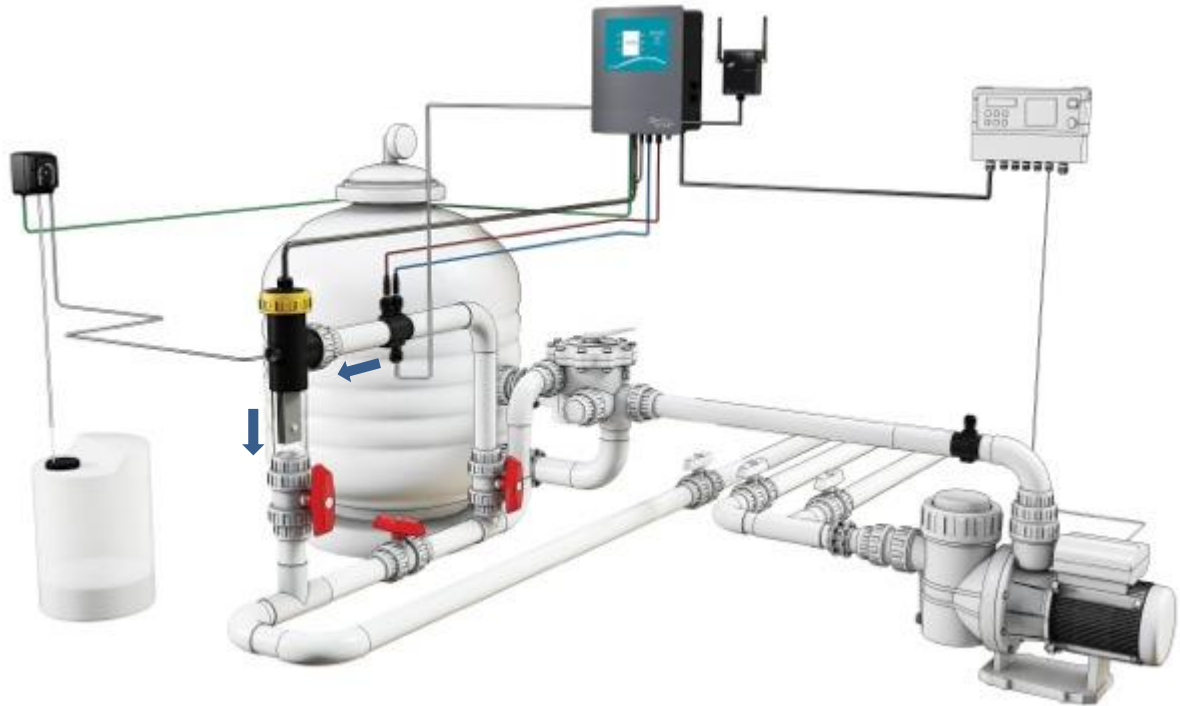
3.4 Connecting the temperature sensor

The temperature sensor cable is routed into the Salt Relax PRO through the cable grommet mounted at the factory on the underside of the housing front cover (see "Installing a cable grommet") and connected as described.

3.5 Installation diagram

The illustration shows connection of the Salt Relax PRO via the filter control.

The holder for electrodes and temperature sensor can also be attached directly inside the chlorine production cell with adhesive.



NOTE

We recommend that the cell is always installed in the bypass. Installation in this way is mandatory if the flow rate exceeds 15 m³/hour, in order to avoid load losses. Installation in the bypass makes it much easier to carry out maintenance on the chlorine production cell and the optionally installed sensors.

If you install the cell in the bypass, you should fit a non-return valve in the bypass line after the cell in place of a manual valve, in order to rule out the danger of accidental actuation.

It is imperative to note that the chlorine production cell must always be the last element installed on the return line to the pool (see sketch above).

To enable use of the integrated gas flow sensor, the cell must be positioned vertically. The sensor will only function correctly if this is the case. If installation in vertical position is not possible, the paddle flow switch supplied with the device must be used!

Please note that the water flows through the chlorine production cell as shown in the diagram and not in the reverse direction.

The chlorine production cell itself is attached inside the bypass piping with adhesive. Depending on the diameter of the pipe, it may be necessary to use the reducer supplied.



NOTE

When inserting the cell into the cell holder, make sure that the cell blades are positioned in the direction of flow of the water. This ensures that the blades offer the lowest possible resistance to the water flowing through the cell.

3.6 Installing the additional flow switch

It must be ensured that the chlorine production cell is only in operation when pool water is flowing through it.

The Salt Relax PRO is equipped with a gas flow sensor integrated in the chlorine production cell. This sensor only functions if the cell is installed in vertical position. If, for technical reasons, it is not possible to install the cell vertically, or if a double dosing lock is to be used, the paddle flow switch provided can be installed; see installation diagram above.

This paddle sensor must be installed directly in front of the chlorine production cell. The electrode holder supplied has a drilled hole for the paddle switch on its underside and is used as the holder for the paddle switch. Ensure that the holder is mounted in the bypass line in front of the cell.



NOTE

When installing the paddle flow switch, it is essential to ensure that the arrow printed on the switch matches the direction of flow of the water!

Connecting the paddle flow switch in the Salt Relax PRO

An additional cable grommet must be created in order to connect the paddle flow switch inside the device. To do this, follow the instructions in "Installing a cable grommet."

3.7 Earthing

Note that even water with a low salt content can be corrosive. To minimise the corrosive effect, BAYROL recommends the installation of a "sacrificial electrode" in the pumping system of the pool. Ask your specialist swimming pool dealer for details.



NOTE

When selecting components (e.g. steel ladders etc.), always take into account that corrosion may occur. It is essential to select components which are suitable for use with salt water. BAYROL expressly refuses to accept liability for damage caused by corrosion!

3.8 Setting the water

3.8.1 Water chemistry

The table below lists the recommended main water values:

	Salt content (g/l)	pH value (pH)	Free chlorine content (mg/l or ppm)	Alkalinity/TAC (ppm)	Total hardness/TH (ppm)	Stabiliser/ isocyanuric acid (ppm)
Permissible values	1.5 - 100 g/l	7.0 - 7.5	0.5 - 2	80 - 120	100 - 500 (5.6 - 28 °dH)	25 - 60
Recommended values	1.5 – 3.0	7.2	0.6 - 1.2	90 - 110	100 - 300	approx. 30
To increase	Add salt	Add pH-Plus	Increase output of the cell; trigger Boost function; add chlorine manually	Add Alca-Plus	Add calcium chloride	Add cyanuric acid
To reduce	Partly drain pool and refill	Add pH-Minus	Decrease output of the cell	Add pH-Minus	Use a water softening plant	Partly drain pool and refill
Test during the bathing season	after backwashing (after refilling the pool)	weekly	weekly	monthly	monthly	monthly

When filling your pool from scratch, it should be noted that initial adjustment of the water can take some time. You may need to add water care products (e.g. pH-Minus) several times within the first 1 - 2 weeks.

Please consult your specialist swimming pool dealer if you are uncertain about the adjustment of the water quality in your pool.

Please ensure that the values given in the table are complied with beyond the end of the bathing season by regularly testing and if necessary correcting the water quality. The required test sets and the respective water care products are available from your specialist BAYROL swimming pool dealer.



TIP

Check the cyanuric acid content when you check the salt content. These two values usually drop at the same time.

3.8.2 The right salt

Use only salt intended for use in swimming pools with salt electrolysis systems. Such salt has a high level of purity and is usually sold by specialist swimming pool dealers in 25 kg sacks.

Never use rock salts, de-icing salts, salts with sodium ferrocyanide, salts with separating agents or iodised salts!

The Salt Relax PRO is suitable for operation with sea water.

3.8.3 Calculating the pool volume

Rectangular pools



$$\text{Length (m) x width (m) x depth* (m) = pool volume (m}^3\text{)}$$

Oval pools



$$\text{Longest length (m) x greatest width (m) x depth* (m) x 0.89 = pool volume (m}^3\text{)}$$

Round pools



$$\text{Diameter (m) x diameter (m) x depth* (m) x 0.79 = pool volume (m}^3\text{)}$$

*Depth = average depth of the water

Figure-8 pools



$$\text{Longest length (m) x greatest width (m) x depth* (m) x 0.85 = pool volume (m}^3\text{)}$$

3.8.4 Calculating the amount of salt to add

The amount of salt to be added to a freshly filled pool (salt-free water) is calculated with the following formula:

$$\text{Desired salt content (g/l) x pool volume (m}^3\text{) = amount of salt to be added (kg)}$$

The amount to be added to water which already contains salt is calculated with the following formula:

$$[\text{Desired salt content (g/l) - existing salt content (g/l)}] \times \text{pool volume (m}^3\text{) = amount of salt to be added (kg)}$$

3.9 Adding the salt to the pool

Before adding the salt:

Check that the pH value of the water is within the optimum range (pH 7 to pH 7.4).

Also check that the water in the pool is free from metals and of perfect quality. If necessary, carry out shock chlorination of the water. It is best to do this when the water is at a temperature of at least 20°C.

Adding the salt:

Switch the circulating pump on and open all inlets and outlets to ensure the greatest possible flow of water through the pool. If fitted, also activate the bottom drain. Pour the salt directly into the pool. Do this at a point where there is high flow, e.g. at the inlet jets. Ideally, swirl the salt around with a long-handled broom to accelerate the dissolving process. After adding the salt, run a filtration process continuously for at least 24 hours to ensure that the salt is fully dissolved and evenly distributed.

4 Operating the Salt Relax PRO

4.1 Main screen

Electrolysis
Production intensity in %

Pol 1 Polarity 1
Pol 2 Polarity 2

Boost function

Measured value
pH / redox (optional)

Status of auxiliary relay

Current time

Status of filtration relay
man Manual
aut Automatic
hea Heating
smt Smart
int Intelligent

Status of lighting
man Manual/ aut Automatic

Cover Production automatically reduced to %age

Low Missing salt / cell encrusted / cell spent (see Troubleshooting)

Flow Filtration/production stopped due to lack of water flow

7.2 pH setpoint

ON/OFF Function settings for the pH-Minus/pH-Plus pump

AL3 Maximum dosing time exceeded (to reset the alarm, press for 5 sec.)

FL1 Flow signal

ON/OFF Function of the additional chlorine pump (optional)

700 Redox setpoint (minimum value)

Heating ON/OFF

4.2 Quick access to salt electrolysis

The Quick Access function allows rapid activation of the Boost function and easy adjustment of the output of the chlorine production cell.

Hold key pressed for at least 3 seconds.

Electrolysis output

Set the output (large flashing % value) with / keys of your Salt Relax PRO. Adjust the system output to suit the requirements of your pool. This setting corresponds to the setting in the Electrolysis menu.

Boost

Activate the Boost function by using / to select On and confirming with .

The Boost function increases chlorine production to the maximum value (100%) for the following 24 hours of filtration time, after which it automatically returns to the programmed filtration cycle. In most cases, this is sufficient to bridge times of increased chlorine requirement. If Salt Relax Pro is controlled via the external timer, please ensure that the timer runs continuously for 24 hours.

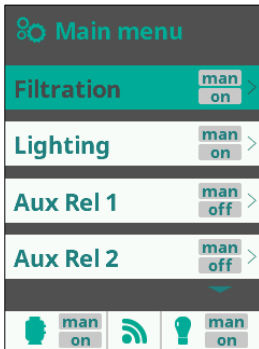


Note

If your pool needs a chlorine shock, we recommend that you administer it by adding chlorine manually.

4.3 The main menu

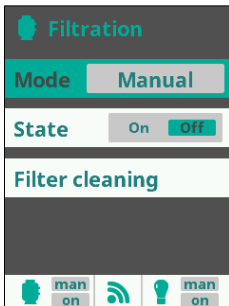
4.3.1 Filtration



The Filtration menu allows you to set the activation of the filter pump. In addition, depending on the menu item, control of the heating can also be included.

The line Filtration shows the selected operating mode (man, aut, hea, smt, int) and the current operating state of the filtration pump (on/off).

To set, select Filtration using \downarrow / \uparrow and confirm with OK . The mode is selected in the line Mode using the \oplus / \ominus keys



Manual mode

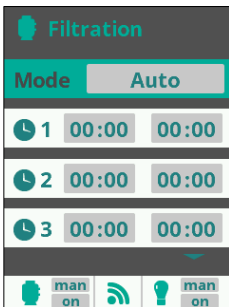
Allows you to switch the filtration process on and off manually, without timer or additional functions.



Displays whether the filtration pump is switched on. Switch using the keys \oplus / \ominus



see below



Automatic mode (time-controlled)

In this mode, filtration can be activated via timers allowing you to enter starting and stopping times. The timers run on a daily schedule.



Setting the daily switch-on and switch-off times (up to 3 filtration cycles possible).

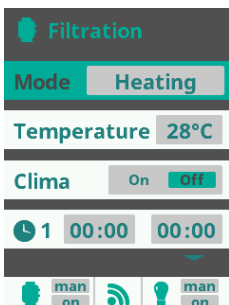
To set, use \downarrow / \uparrow to select the line for the timer you wish to set (1-3).

Press the \oplus / \ominus keys to access the hour for starting the selected timer. Set the hour at which the timer is to start using \oplus / \ominus . Press \uparrow to enter the minutes of the starting time and set using \oplus / \ominus . Confirm your entry with OK or reject it with \rightarrow .

Set the switch-off time for the selected timer in the same way.



see below



Heating mode (via timer with optional climate control)

This mode functions like Automatic mode but in addition offers the option of regulating the temperature.



Set desired temperature with \oplus / \ominus . There is a hysteresis of 1°C (e.g. desired temperature is 23°C - the system switches on the heating when the temperature falls below 22°C and switches it off as soon as a temperature of 23°C is reached).



ON: The filtration pump remains switched on even after the end of a filtration cycle if the measured water temperature is below the desired temperature. When the desired temperature is reached, filtration and heating stop until the next programmed filtration cycle.

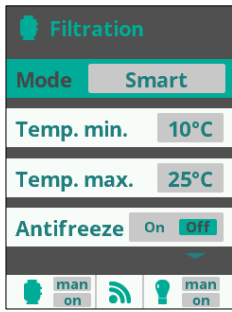
OFF: The heating runs during the set filtration cycles only.



To set the daily switch-on and switch-off times (up to 3 filtration cycles possible), see Automatic mode.



see below



Smart mode

This mode is based on Automatic mode. In addition, the filtration times are adjusted in accordance with the temperature. 2 temperatures are entered to do this:

Temp. min. 10°C

If the temperature falls below this temperature setting, the filtration time is reduced to 5 min/hour.

Temp. max. 25°C

Above the set temperature, filtration runs at the set times.

Between these two temperatures, the filtration times increase in a linear progression.

Set the temperatures using \oplus / \ominus .

Antifreeze On Off

If Antifreeze mode is activated, the filtration pump is switched to continuous operation as soon as the water temperature falls below 2°C.

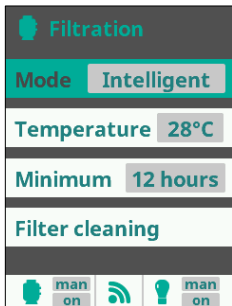
Activate/deactivate frost protection with \oplus / \ominus .

1 00:00 00:00

To set the daily switch-on and switch-off times (up to 3 filtration cycles possible), see Automatic mode.

Filter cleaning

see below



Intelligent mode

This mode uses the two operating parameters desired water temperature and min. filtration time per day (min. 2 hours to max. 24 hours). Filtration is activated for at least 10 minutes every two hours in order to check the water temperature.

The selected minimum filtration time is split up so that spread over the day, filtration is switched on and off for equal amounts of time. If the desired temperature is not reached within one switch-on time, this switch-on time is automatically extended. The extra time is subtracted from the following filtration cycles, whereby the first 10 minutes of each filtration cycle are run in every case.

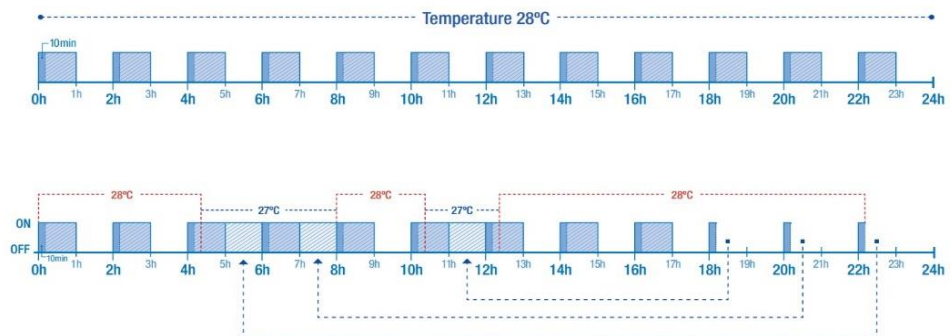
Temperature 28°C

Desired water temperature. Set using \oplus / \ominus .

Minimum 12 hours

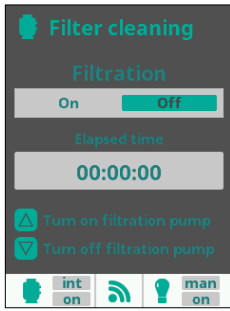
Minimum filtration runtime. Set using \oplus / \ominus .

Using the settings (see left) as an example, the diagram below illustrates how this function works:



Filter cleaning

see below



Filter cleaning (available in all operating modes)

This menu is used to facilitate backwashing of the sand filter.

As soon as the menu is activated in one of the filtration modes (Manual, Automatic, Heating, Smart, Intelligent), the chlorine production cell is switched off.

Now proceed as follows:

- Using the **+** / **-** keys, set the filtration pump to Off
- Set the valve of your filtration pump to Backwashing.
- Switch the filtration pump back on again (On). You can follow the expired backwashing time on the counter. It is imperative to ensure that your filter is adequately backwashed!
- After an appropriate backwashing cycle, switch the filtration pump off and reset the valve to Filtration. If desired, you can now run a rinse cycle. The process is the same as for backwashing, but the valve is set to Rinse.
- When **↻** is pressed to exit Filter Cleaning, the system switches back to the programmed mode.

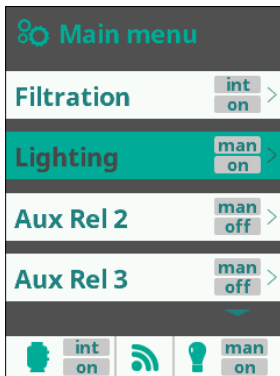


NOTE!

BAYROL recommends that you select the maximum filtration times. Long filtration runtimes ensure high filtering performance of the sand filter and allow adequate production of the disinfection agent.

If filtration runtimes are too short, this will inevitably cause problems with the disinfection of the water (e.g. algae growth etc.)

4.3.2 Lighting

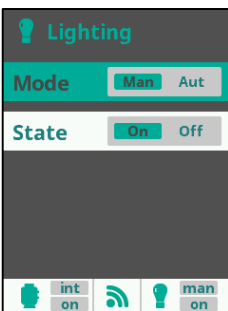


With the Salt Relax PRO, you can switch lighting (e.g. underwater lighting or hall lighting) on and off directly or via a timer.

The line Lighting shows the selected operating mode (manual or auto) and the current operating state of the filtration pump (on/off).

To set, select Lighting with **↓** / **↑** and confirm with **OK**

The mode is selected in the line Mode using the **+** / **-** keys.

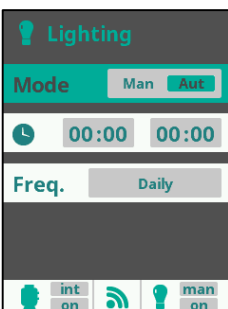


Manual

Allows you to switch the lighting on and off manually.



Shows whether the lighting is switched on. Switch using the keys **+** / **-**



Automatic (time-controlled)

Switch-on and switch-off times for the lighting are defined.

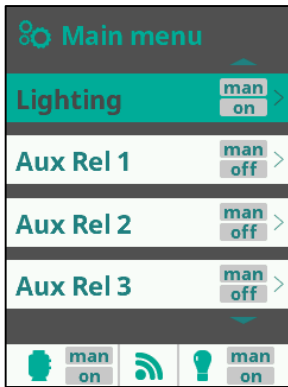


Use the **+** / **-** keys to access the hour for starting the selected timer. Set the hour at which the timer is to start **+** / **-**. Press **↑** to enter the minutes of the starting time and set using **+** / **-**. Confirm your entry with **OK** or reject it with **↻**.



The timer can also be set to switch at certain intervals (daily; every 2 days; every 3 days; every 4 days; every 5 days; weekly; every 2 weeks; every 3 weeks; every 4 weeks). Select the desired switching frequency using **+** / **-**.

4.3.3 Auxiliary relays (Aux Rel1, Aux Rel2, Aux Rel3, Aux Rel4)

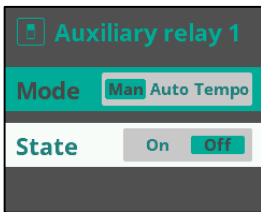


With the Salt Relax PRO, you can control up to 4 additional functions (e.g. for water attractions, counter-current systems, garden lighting etc.). These functions are connected to the up to 4 auxiliary relays.

The following description of auxiliary relay 1 applies analogously to all further relays.

To set, select Aux Rel 1...4 with / and confirm with .

The mode is selected in the line Mode using the / keys.

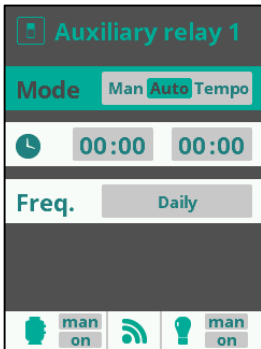


Manual

Allows you to switch auxiliary relay Aux1 on and off manually.



Shows whether relay Aux1 is switched on or off. Switch using the keys / .



Automatic (time-controlled)

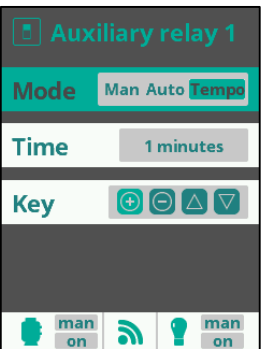
Switch-on and switch-off time for relay Aux1 are defined.



Use the / keys to access the hour for starting the selected timer. Set the hour at which the timer is to start using / . Press to enter the minutes of the starting time and set using / . Confirm your entry with or reject it with .



The timer can also be set to switch at certain intervals (daily; every 2 days; every 3 days; every 4 days; every 5 days; weekly; every 2 weeks; every 3 weeks; every 4 weeks). Select the desired switching frequency using / .



Temporary

When a programmable key is pressed, relay Aux1 is switched on for a defined duration (a typical use, for example, is to activate the air jets in spas).



Runtime in minutes and a key are defined using / .



The key to be pressed is selected using / . Every time this key is pressed during normal operation, the external device connected to the relay is switched on for the defined time.



ATTENTION

The connected device will also be switched on if the programmed key is pressed by accident. Only use this function to connect devices which do not give rise to a safety risk! The switching of the relay is not monitored by any safety feature (e.g. flow switch)!



NOTE!

Please note that the respective auxiliary relays can only be used if this is enabled in the Service menu! Unless enabled, the respective relay is classified as used for other purposes (through predefined functions) and the associated menu items are not displayed in the main menu.

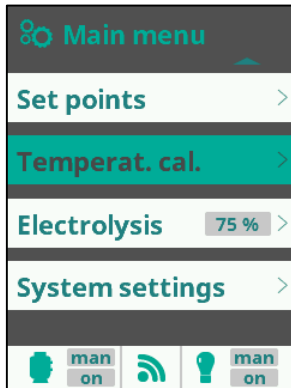
Aux Rel 3 is generally not used for other purposes and is therefore always visible and utilisable.

4.3.4 pH calibration / redox calibration / setpoint

These menu items are only visible and active if the option pH option and/or the redox option is installed.

Please refer to the chapter pH option and/or Redox option for further information.

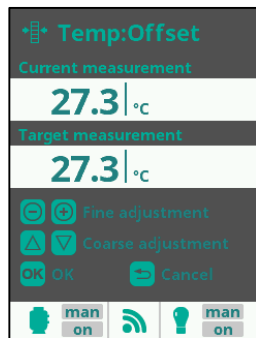
4.3.5 Temperature calibration



In this menu, the temperature sensor can be calibrated with the displayed temperature value.

If you control your pool heating with the Salt Relax PRO, this calibrated temperature value is used to switch the heating on and off.

To set, select Temperat. cal. with / and confirm with .



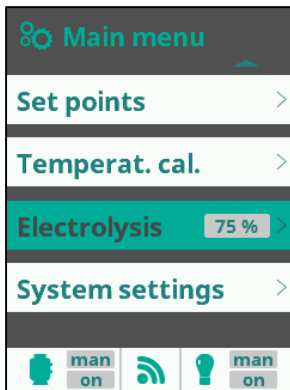
Manual temperature calibration

Specify the temperature at the temperature sensor (e.g. pool water temperature).

Set this temperature in the line Target measurement using / (Coarse adjustment) or using / (Fine adjustment), and confirm with .

If you do not wish to calibrate the temperature, press to exit this menu item.

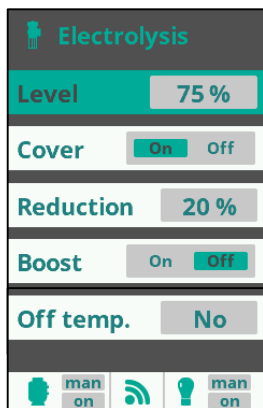
4.3.6 Electrolysis



The menu Electrolysis is used to make all settings relating to chlorine production.

The Electrolysis bar displays the set production capacity in %.

To set, select Electrolysis 50% with / and confirm with .



Output (Level)

Set the output of the chlorine production cell to 0 – 100% using / . Adjust the production capacity of the system to suit the requirements of your pool.

This setting corresponds to the setting in the menu Quick access.

Cover

Using / , select whether you wish to reduce the production capacity with the pool cover closed. The precondition for use of this function is a closing signal when the cover is closed. It is connected as described in the chapter Connecting terminals.

When this function is activated, you can set the option of reducing production if the cover is closed. The %age value adjustable with / is based on the set production capacity.

Boost function

Activate the Boost function by using / to select "On" and confirming with .

The Boost function increases chlorine production to the maximum value (100%) for 24 hours, after which it automatically returns to the programmed filtration cycle. In most cases, this is sufficient to bridge times of increased chlorine requirement.



Note

If your pool needs a chlorine shock, we recommend that you administer it by adding chlorine manually.

Switch-off temperature

Here, select the water temperature (5 – 15°C) below which chlorine production is no longer switched on.

Set the switch-off temperature using / and confirm with .

If you wish to activate chlorine production when the water is cold, you can deactivate the temperature limit with "No."



Note:

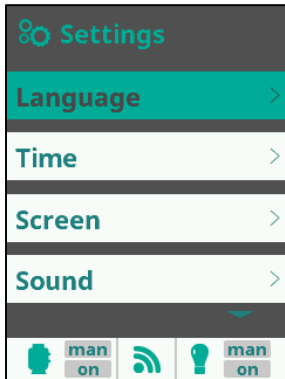
Cold water requires little or no disinfection agent. It may therefore be practical to define a temperature limit here.

Settings

Please refer to the next chapter

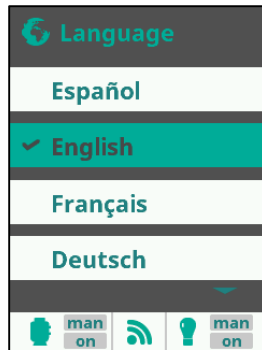
4.4 Settings menu

4.4.1 Language



Set the desired menu language.

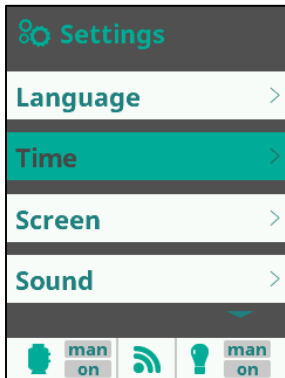
To set, select the language with / and confirm with



Language

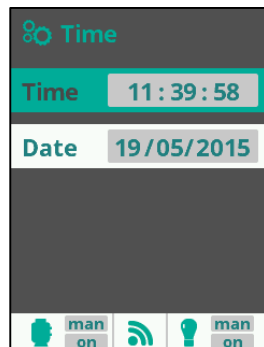
Select the desired language with / and confirm with

4.4.2 Time



Setting for the system time.

To set, select Time with / and confirm with



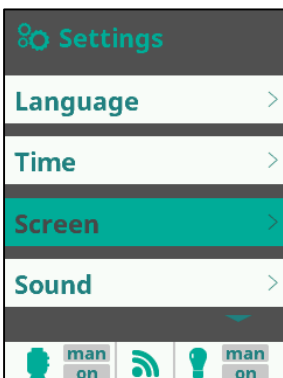
Time

Press or to activate entry of the time. Use and to set the hour. opens the input window for the minutes, which you can set using and . opens the input window for seconds, which you can set using and . Press to confirm the entered time.

Date

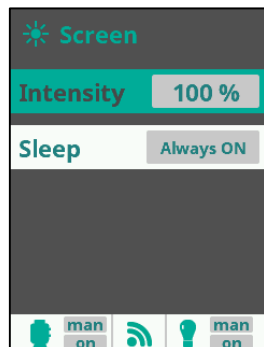
Press or to activate entry of the date. Use and to set the day. opens the input window for the month, which you can set using and . opens the input window for the year, which you can set using and . Press to confirm the entered date.

4.4.3 Screen



Setting the screen brightness and switch-off time.

To set, select Screen with / and confirm with



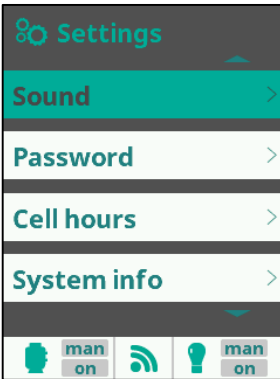
Intensity

To change the brightness of the display, select the desired value with and .

Sleep (screensaver)

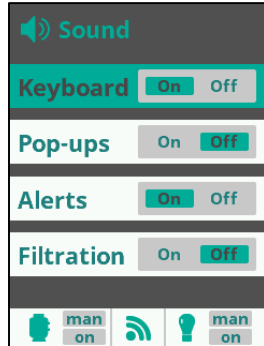
Using and , select the time after which the display switches off if no key is pressed.

4.4.4 Sound



Defines the events which trigger an acoustic signal.

To set, select Sound with / and confirm with .



Keyboard

To activate a confirmation tone when a key is pressed, select On using and .

Pop-ups

To activate the acoustic signal when pop-up messages are displayed, select On using and .

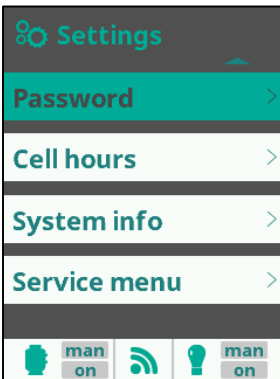
Alerts

To activate the acoustic signal when alerts are issued, select On using and .

Filtration

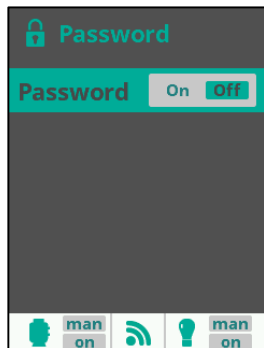
To activate the acoustic signal at the start of a filtration cycle, select On using and .

4.4.5 Password



This setting defines whether access to the menus from the basic screen is password-protected.

To set, select Password with / and confirm with .



Password

To activate password protection, select On using and . You will be prompted to enter a 5-key password. Enter a key combination of your choice. You will be asked to enter this password each time you want to access the menu level from the main screen. Remember your password.

To deactivate password protection, select Off using and , and confirm with . If you should forget your password, the Service password can be used to override your forgotten password. In this way, you can return to the menu item Password and deactivate it by selecting Off. Then press On, and you will be asked to set a new password.

4.4.6 Cell hours

Time info displays the switch-on time of the chlorine production cell in hours/minutes/seconds.

4.4.7 System info

System info provides detailed information on the screen used in the system and the power unit. This information is only relevant for servicing of the devices.

4.4.8 Service menu

The Service menu and all settings which can be made therein are reserved exclusively for the use of specialist service technicians.

4.5 Service menu



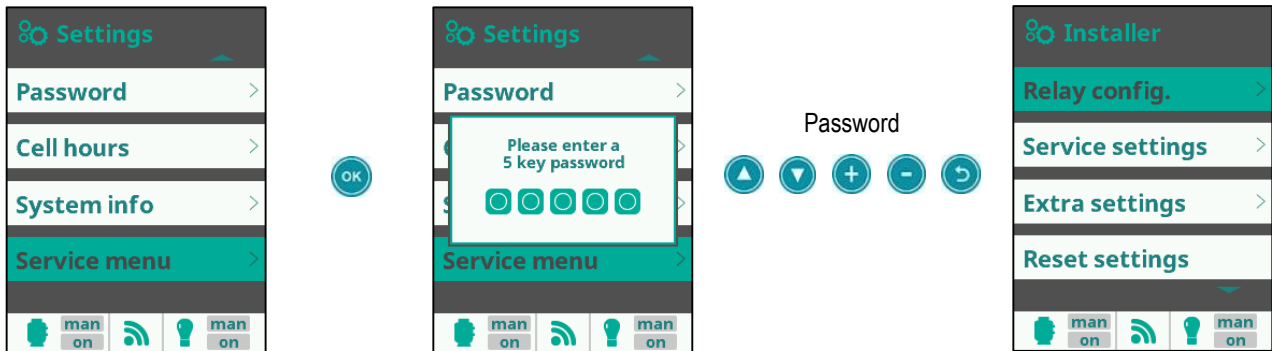
Necessary qualification:

The Service menu and all settings made therein are reserved exclusively for the use of specialist service technicians/installation engineers. Improper or incorrect settings will result in the loss of warranty!

This menu allows the following actions:

- Activation and allocation of predefined external devices to relays (see diagram below)
- Fine adjustment of the Salt Relax PRO
- Configuration of the reactions of the Salt Relax PRO
- Configuration of connected external devices (via 15 parameters)
- Resetting of the operating hour counter

Access to the Service menu (for specialist service technicians/installation engineers only):



4.5.1 Relay configuration

The 7 relays available in the Salt Relax PRO can be assigned to various predefined external devices and activated via the Salt Relax PRO. These predefined external devices are:

Relay (designation in the software)	Terminal (designation on the board)	External device / predefined function	Electr. circuitry
ph	PH	Dosing pump pH Minus / dosing pump pH Plus	230V/110V / 50Hz
Aux1	AUX1	Dosing pump pH Plus (for pH Minus AND pH Plus dosing)	230V/110V / 50Hz
Aux2	AUX2	Additional dosing pump for disinfection (to support the electrolysis cell)	230V/110V / 50Hz
Filter	FILTERPUMP	Filtration pump (circulating pump)	Floating switch
Light	LIGHT	Lighting	Floating switch
Aux3	AUX3	Not predefined	Floating switch
Aux4	AUX4	Heating (e.g. heat pump)	Floating switch



IMPORTANT!

Please note that this assignment should be adhered to when using the respective predefined function (e.g. filtration pump).

Free use of the relays Aux1, Aux2, Aux3 and Aux4:

In order to assign the relays Aux1, Aux2 and Aux4 freely, the predefinition of the respective device must be deactivated by selecting No in the Relay configuration menu.

If a specific predefined function (see table) is assigned to relays Aux1, Aux2 and Aux4, they do not appear in the main menu.

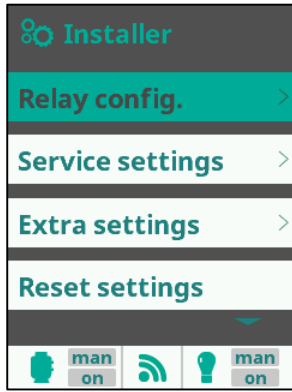
Relay Aux3 can be assigned freely without making further settings and is always visible in the main menu.



ATTENTION!

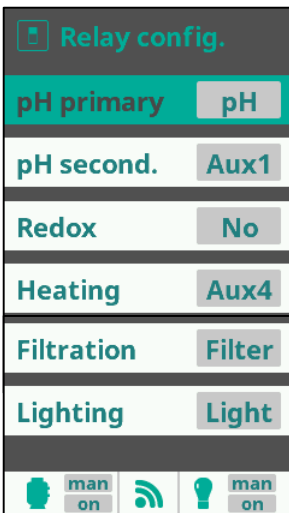
Make sure that only one function is assigned to each relay!

Multiple assignment will cause the relay to trip in accordance with each function assigned!



To access the settings, select Relay config. with / and confirm with .

Selection of the respective relay in the individual lines is carried out using / .



pH primary

Only visible if pH option is installed.

Depending on the setting of the function "10 setpoint mode" in the "Service settings" menu, the pH primary and pH secondary are activated:

If parameter "10 setpoint mode" is set to 0 -> relay pH primary (default: PH) controls the dosing pump for pH Minus, relay pH secondary (default Aux1) controls the dosing pump for pH Plus

If parameter "10 setpoint mode" is set to 1 -> relay pH primary (default: PH) controls the dosing pump for pH Minus.

If parameter "10 setpoint mode" is set to 2 -> relay pH primary (default pH) controls the dosing pump for pH Plus.

pH secondary

Only visible if pH option is installed and function "10 setpoint mode" is set to 0 in the "Service Settings" menu.

If parameter "10 setpoint mode" in the "Service Settings" menu is set to 0, the relay pH secondary (default Aux1) for the dosing pump pH Plus is activated.

Redox

Only visible if the redox option is installed.

The relay selected under Redox (default: Aux2) switches the additional dosing pump for disinfection if 0 is selected in parameter "4 Electrolysis mode" in the "Service Settings" menu. In this case, the menu item "Aux Rel 2" is not displayed in the main menu.

Setting No:

Relay Aux2 is displayed in the main menu as "Aux Rel 2" and can be freely assigned.

Heating:

Only visible if function "15 Heating" in the "Service Settings" menu is set to 1.

The relay selected under Heating (default Aux4) is activated for switching of the heating in accordance with the settings in the menu item Filtration. The menu item Aux Rel 4 is not displayed in the main menu.

Setting No:

Relay Aux4 is visible in the main menu as "Aux Rel 4" and can be freely assigned.

Filtration:

The relay selected under Filtration (default Filter) is activated for switching of the filtration pump in accordance with the settings in the menu item Filtration.

Setting No:

Relay Filter is without function, the menu item Filtration is displayed in the main menu as manual ON.

Lighting

The relay selected under Lighting (default: Light) is activated for the switching of a light in accordance with the settings in the menu item Lighting.

Setting No:

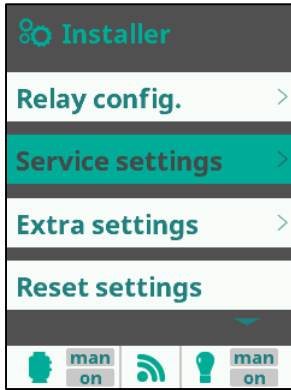
Relay Light is without function, the menu item Lighting is not displayed in the main menu.

Additional dosing pump for disinfection agent (only with use of redox option):

In some pool installations, there may at times be a sharp increase in the need for disinfection agent which cannot be covered despite the high-performance chlorine production cell. In such cases, the Salt Relax PRO can activate an additional dosing pump for liquid chlorine.

This dosing pump is connected to the relay in accordance with the setting selected in Redox (see menu item Relay configuration) (default: Aux2). The necessary settings in the software are made in the Service menu in the menus Relay configuration and Service settings (parameter 4 is set to 0).

4.5.2 Service settings









Setting of basic functions.

To access, select Service settings with / and confirm with

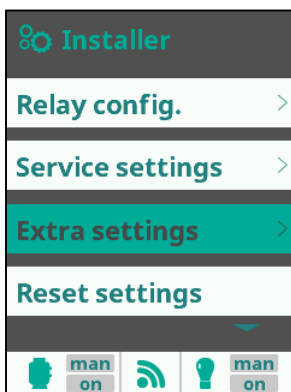
When you exit the menu, confirm your settings again with

Service settings	Range	Unit	Default	Description
3 Flow mode select Val: 0	0 - 1	-	1	Controls the reaction of the Salt Relax PRO when the gas flow switch or paddle flow switch (if installed) reports no flow. Setting 0: FL1 flow switch only stops the chlorine production cell. Setting 1: FL1 flow switch also stops the connected pumps pH and where applicable Disinfection and Heating. Time-controlled functions (e.g. Lighting) are not switched off.
4 Electrolisis mode Val: 0	0 - 1 - 2	-	1	Defines the reaction of the chlorine production cell and an additionally connected dosing pump for disinfection when the redox option is used. Setting 0: The chlorine production cell runs continuously. The relay defined under Redox in Relay configuration (default: Aux2) switches on an additionally connected pump if required, depending on the measured redox value. Setting 1: The chlorine production cell is switched on/off depending on the measured redox value. The relay defined in Relay configuration under Redox (default: Aux2) switches on an additionally connected pump as soon as the measured redox value falls more than 2% below the setpoint value. Setting 2: The chlorine production cell is switched on/off depending on the measured redox value. The chlorine production cell is switched on/off depending on the measured redox value. The additional disinfection dosing pump is activated with a time delay as set in parameter 8 and 9.
5 Elect pol 1 time Val: 30	0...999	Min.	300	Defines the duration of the cycle for which the chlorine production cell is switched on to polarity 1. Although it is possible to set polarity 1 and 2 separately, we recommend that you set the cycles for both polarities to the same value. Attention: The warranty for the chlorine production cell expires if a time shorter than 200 minutes is set.




 Service settings	Range	Unit	Default	Description
6 Elect pol 2 time Val: 30	0...999	Min.	300	Defines the duration of the cycle for which the chlorine production cell is switched on to polarity 2. Although it is possible to set polarity 1 and 2 separately, we recommend that you set the cycles for both polarities to the same value. Attention: The warranty for the chlorine production cell expires if a time shorter than 200 minutes is set.
7 Elect dead time Val: 0	0..5	Min.	1	Defines the duration of the dead time (cell is switched off, display of the output switches to 0) when the polarity of the chlorine production cell is changed. A time of at least 1 minute must be set here!
8 Redox/Cl relay wait time Val: 1	0...999	Min.	1	Only applies if parameter "4 Electrolysis mode" is set to 2: Defines the wait time after which the additional dosing pump for disinfection is switched on when the value falls below the selected setpoint.
9 Redox/Cl relay work time Val: 60	0...999	Min.	15	Only applies if parameter "4 Electrolysis mode" is set to 2: The additional dosing pump for disinfection is switched off even if the measured value for redox is still below the defined setpoint value after expiry of this dosing time. The following can be checked should the system fail to reach the setpoint within the set time: <ul style="list-style-type: none"> - Redox electrode - Setting for output of chlorine production cell - Leakage in the dosing line of the additional disinfection - The redox setpoint may be too high
10 pH setpoint mode Val: 0	0 – 1 - 2	-	1	Only applies if the pH option is installed. Defines the dosing direction of the Salt Relax PRO: Setting 0: bi-directional pH regulation The relay defined in Relay configuration under pH primary (default: pH) controls the dosing pump for pH Minus, the relay defined under pH secondary (default: Aux1) controls the dosing pump for pH Plus. Setting 1: Dosing of pH Minus The relay defined in Relay configuration under pH primary (default: pH) controls the dosing pump for pH Minus. Setting 2: Dosing of pH Plus The relay defined in Relay configuration under pH primary (default: pH) controls the dosing pump for pH Plus.
11 pH AL3 pump off time Val: 200	0...999	Min.	200	Only applies if the pH option is installed. Defines the maximum switch-on time of the pH pump, after which the pH alarm (AL3) is activated. This alarm indicates that although the dosing pump pH was active, it was not possible to reach the pH setpoint value.

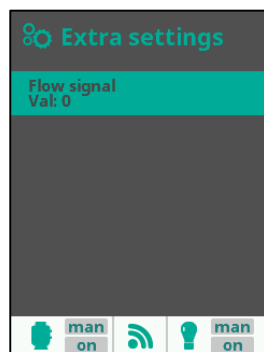
 Service settings	Range	Unit	Default	Description
12 pH AL3 function Val: 2	0 – 1 – 2		2	Only applies if the pH option is installed. Defines the reaction of the Salt Relax PRO after activation of the pH alarm (AL3). Setting 0: No reaction. Setting 1: The alarm appears after the wait time defined in parameter "11." Setting 2: After the wait time defined in parameter "11," the alarm appears and the dosing pump pH switches off. To reset the pH alarm, press  for 5 seconds.
13 pH rel. activation delay Val: 0	0...999	Min.	0	Defines the time delay before activation of the pH dosing pump(s) when there is a deviation between measured value and setpoint. Here, a delay time can be set for pools with an overflow tank. Normally, good results will be achieved with a setting of approx. 15 min. If necessary, adjust the system delay time to suit your pool.
14 Show/use temperature Val: 1	0 – 1	-	1	Setting 0: The temperature is not shown on the display. Setting 1: The temperature is shown on the display. Filter operating mode Smart becomes available.
15 Heating Val: 1  hea on   man on	0 - 1		1	Setting 0: The relay defined in Relay configuration under Heating (default: Aux4) is not temperature-controlled. Setting 1: The relay defined in Relay configuration under heating (default: Aux4) is temperature-controlled. An operating mode which controls the heating (Heating or Intelligent) must be selected in the Filtration menu.

4.5.3 Extra settings






Activation of the flow signal FL1 is defined in Extra settings.

To switch over, select Extra settings with  /  and confirm with .

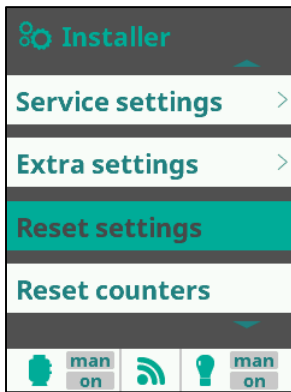


- Setting of the flow signal:
- Setting 0: The signal FL1 is only activated by the gas sensor of the cell (the external flow switch is deactivated).
 - Setting 1: Signal FL1 is never activated.
 - Setting 2: Signal FL1 is only activated by the external flow switch (the gas sensor of the cell is deactivated).
 - Setting 3: Signal FL1 is activated if either the gas flow sensor of the cell OR the external flow switch trips.

If you attach an external flow switch (e.g. the paddle flow switch supplied) to the screw terminals (see Connecting terminals), please set the value 3 (default setting).
 Never set values greater than 3 in this menu.

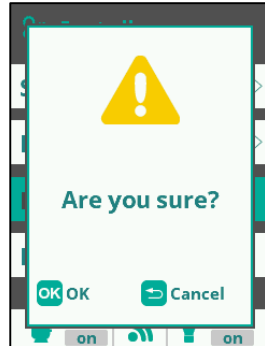
If necessary, change the setting with  /  and confirm with .

4.5.4 Reset settings



In Reset settings, all settings made can be reset to the as-delivered status.

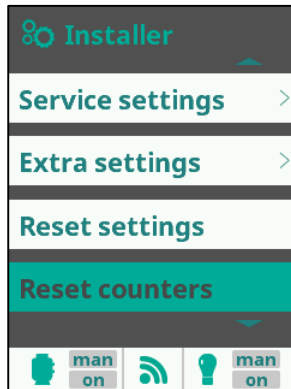
To do this, select Reset settings with / and confirm with



If you are sure you wish to restore the factory settings, answer the confirmation prompt with

If you wish to retain the settings, exit the confirmation prompt with

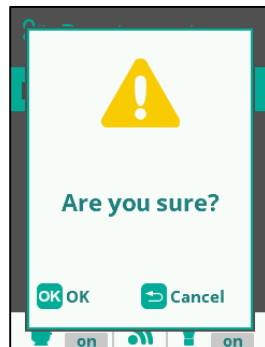
4.5.5 Reset counters



In Reset counters, the operating hour counter of the chlorine production cell can be reset.

To access the settings, select Reset counters with / and confirm with

In the next screen, select Electrolysis with / and confirm with



If you are sure you wish to restore the factory settings, answer the confirmation prompt with

If you wish to retain the settings, exit the confirmation prompt with

Connection

The menu item Connection is without function.

5 pH option

A constant and optimally set pH value for the water in the pool is a prerequisite for reliable and stable disinfection with chlorine.

If the pH value is monitored manually, it must be checked weekly and adjusted by hand if necessary. BAYROL recommends the use of a pH module, which monitors and adjusts the pH value automatically.



Attention:

Installation of the pH module must be carried out by specialist service technicians/installation engineers only!

5.1 Scope of delivery, pH option



- 1 Pump attachment
- 2 pH dosing pump
- 3 Suction filter (inserted into the pH canister)
- 4 Injection nozzle (inserted into the chlorine production cell)
- 5 Electrode holder
- 6 Buffer solution pH 10
- 7 Buffer solution pH 7
- 8 Electrode cleaner
- 9 Canister cap (with hole for the suction hose)
- 10 pH module
- 11 pH electrode
- 12 Pressure hose (hard, installation between pH pump and injection)
- 13 Suction hose (soft, installation between suction filter and pH pump)

5.2 Installing the pH module

Installation of the pH module is described in detail in the chapter "Installing the pH and redox pH module." Please note that installation must be performed by a specialist service technician/installation engineer.

5.3 Installing the pH electrode

Install the pH electrode in the holder provided (see installation diagram) using the clamp mounting supplied. Insert the electrode into the screw fitting until its tip is approximately in the centre of the pipe cross-section. Ensure that the screw fitting seals tightly. Connect the electrode to the socket provided on the Salt Relax PRO.

5.4 Installing the pump and injection nozzle

Install the pump in a location where the hose connections are as short as possible. The injection nozzle for dosing pH-Minus is mounted in the screw fitting provided on the chlorine production cell.

Using a small slotted screwdriver, set the red adjustment wheel of the pump as shown in the diagram below (approx. first third). If the pump runs for extended periods, you can change the setting of the red adjustment wheel and thus increase the pump output to set the pH value. This may be necessary with large pools.

On the other hand, if the pH setpoint is often exceeded, you can lower the setting of the pump and thus reduce its output.



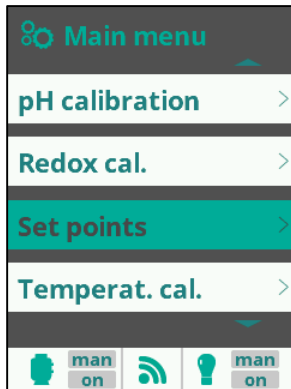
Electrical connection of the pH pump in the Salt Relax PRO:

- Disconnect the Salt Relax PRO from the mains. It is not enough to simply switch the device off.
- Remove the front cover of the Salt Relax PRO (see "Removing the housing front cover").
- Create a feed-through for the cable of the dosing pump (see installing a cable grommet). Feed the cable of the dosing pump through the cable gland and connect it as described in "Relay configuration" to the relay defined under pH primary (default pH).
- Close the cover. Make sure that the seal is firmly seated and that the clamps are fitted securely.
- As soon as you reconnect the Salt Relax PRO to the power supply and switch it on, the software will detect the pH option and display the associated menus at the corresponding points.

5.5 Settings on the device

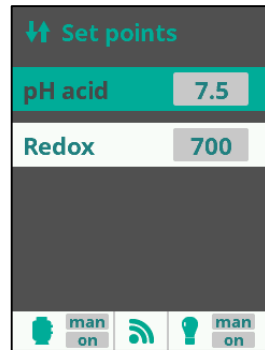
5.5.1 Set point pH

Setpoint for unidirectional pH regulation:



Entry of the setpoint for unidirectional pH regulation.

To select, select Set points with / and confirm with .

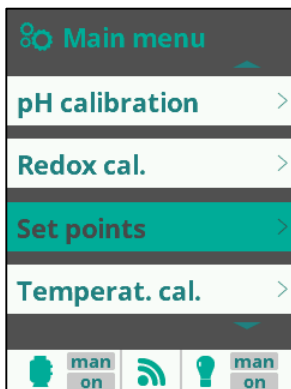


Setpoint pH acid

The optimum pH value is pH 7.0 – pH 7.4.

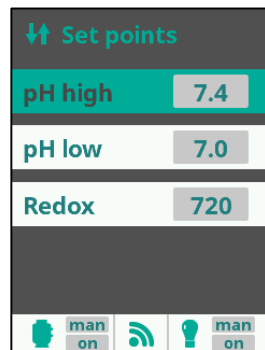
When dosing with / pH Plus enter the setpoint 7, and when dosing with pH Minus, enter the setpoint 7.4.

Setpoint for bidirectional pH regulation:



Entry of the setpoint for bidirectional pH regulation.

To set, select Set points with / and confirm with .



Setpoint pH

The optimum pH value is pH 7.0 – pH 7.4.

Using / , enter 7 as pH low and 7.4 as pH high.

Please have all further settings in the software of the Salt Relax PRO made by a specialist technician as described in Service menu (parameter "10 pH setpoint mode," "11 pH AL3 pump off time," "12 pH AL3 function" and "13 pH relay activation delay").

5.6 Calibrating the pH electrode

Regular and conscientious calibration of the measurement electrodes is a prerequisite for precise and reliable measurement and regulation.

Perform calibration on initial commissioning or when putting the device back into operation, when changing the water or replacing electrodes, if the values displayed on the device differ significantly from the readings from the regular manual measurements, after putting in water additives or following other changes in the water quality and regularly, at least once per month.



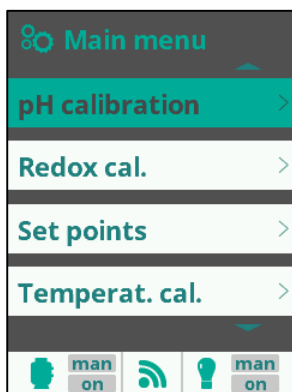
TIP

As the first calibration, perform a 2-point calibration with buffer solutions pH 7 and pH 10 in order to calculate the exact electrode slope.

For regular recalibration (at least once a month), a 1-point calibration will usually be enough. If a photometer is available, recalibration should be performed based on the pH value of the pool water. If not, carry out recalibration with buffer solution pH 7.

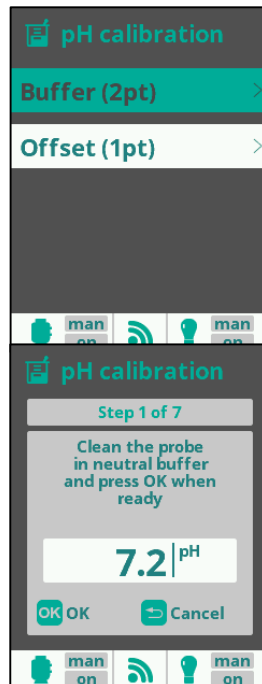
5.6.1 2-point calibration with the two buffer solutions provided (pH 7 and pH 10)

The pH electrode must be removed in order to perform 2-point calibration. Before removing the electrode, please make sure you close the corresponding valves so that no water can escape.



2-point pH calibration

To set, select pH calibration with / and confirm with



2-point calibration

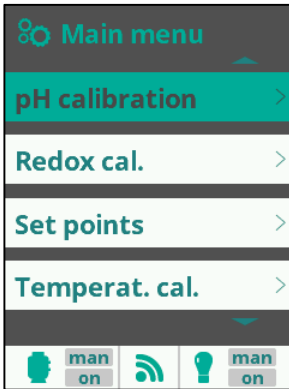
To set, select Buffer (2pt) with / and confirm with

The Salt Relax PRO menu will now guide you step by step through the calibration. Please follow the instructions on the screen

5.6.2 1-point pH calibration

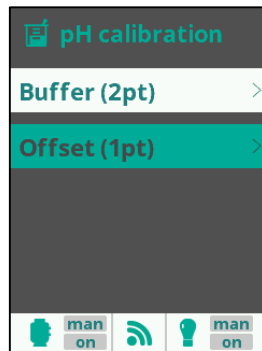
1-point calibration can be carried out with the pH 7 buffer solution provided. Alternatively, pool water can be used if its pH value can be measured precisely (e.g. using a photometer) and is in the area of pH 7.

Never use buffer solution which is more than 12 months old.



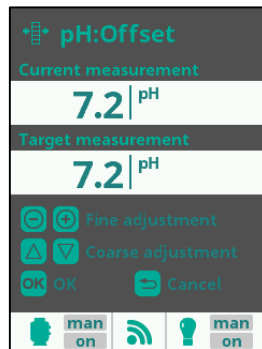
1-point pH calibration

To set, select pH calibration with / and confirm with



1-point calibration

To set, select Offset (1pt) with / and confirm with



Current measurement

Shows the value measured with the current setting.

Target measurement

Allows you to enter the actual pH value. Enter pH 7.0 here if you are performing calibration with the pH 7 buffer solution.

If you are using pool water for calibration, please enter the pH value you measured.

After correct entry, confirm the calibration with

If you notice significant discrepancies between the current measurement and the value measured by you (e.g. using a photometer), you should carry out a 2-point calibration.

6 Redox option

Using the redox option ensures that the chlorine production cell of the Salt Relax PRO is only activated when disinfection agent is actually required.



NOTE!

Different pools may have very different redox values although the chlorine value is the same. For example, a chlorine value of 0.8 mg/l may result in a redox value of 710 mV in one pool, but a redox value of 790 mV in another, similar pool. Significant variations are possible!

For this reason, do not rely on past experience, but measure the precise redox value for each individual pool.

The further chemical composition of the pool water also influences the redox value. For example, adding other water care products may change the redox value although the chlorine value remains stable.

The measured redox value at the desired chlorine level is set on the Salt Relax PRO as a setpoint. The Salt Relax PRO maintains the redox value at the set level, thus ensuring reliable disinfection.

6.1 Scope of delivery, redox option



- 1 Electrode holder
- 2 Buffer solution 465mV
- 3 Electrode cleaner
- 4 Redox module
- 5 Redox electrode

6.2 Installing the Redox module

Installation of the redox module is described in detail in the chapter "Installing the pH and redox pH module." Please note that installation must be performed by a specialist service technician/installation engineer.

6.3 Installing the redox electrode

Install the redox electrode in the holder provided (see installation diagram) using the clamp mounting supplied. Insert the electrode into the screw fitting until its tip is approximately in the centre of the pipe cross-section. Ensure that the screw fitting seals tightly. Connect the electrode to the socket provided on the Salt Relax PRO.

6.4 Redox setpoint

For redox regulation, it is not the calibration of the electrodes which plays a major role, but the correct definition of the redox setpoint.

As long as there is no major change in the water quality and other ancillary conditions, the measured redox value depends directly on the concentration of free chlorine. The chlorine production cell is switched on as soon as the set redox value falls below the limit.

6.4.1 Determining the redox setpoint

Proceed as follows to determine the right redox setpoint for your pool water:

1. Check that the pH value is 7.2 and that the pool water already has the desired amount of salt.
2. Switch the filter unit on and bring the pool water to the desired chlorine value. Ideally, add the required amount of chlorine manually in several steps and check the value repeatedly with pH control measurements.
At the same time, set the desired value for the chlorine stabiliser (isocyanuric acid). In the case of pools with strong exposure to sunlight, 30g of isocyanuric acid per m³ is recommended.
3. Once you have the desired chlorine value in the pool and have checked it with a pH control measurement, observe the redox value displayed on the Salt Relax PRO. It will rise due to the addition of chlorine.
4. Wait for the display value (see main screen) to stabilise. It should then remain roughly the same over a period of approx. 30 minutes.
5. Under the current water conditions, the redox value displayed on the main screen corresponds to the chlorine value previously set. Now set this displayed redox value as the setpoint for redox regulation (see "Setting the redox setpoint on the device").
6. It is essential that you check the chlorine value in the pool via pH control measurement and the displayed redox value on the following day. If necessary, increase or reduce the set value.



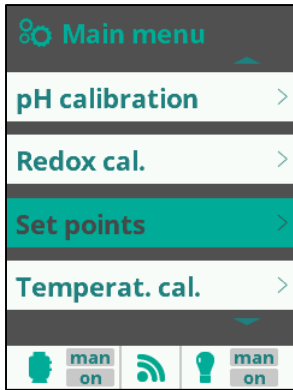
NOTE!

Check the redox setpoint at least every 2 months.

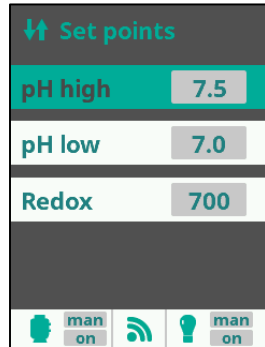
Always check the redox setpoint if you add care products (e.g. flocculants, algicides...) to your pool water. The redox value may change although the chlorine value remains stable.

6.4.2 Setting the redox setpoint on the device

Enter the determined redox setpoint for your pool as follows:



To set, select Set points with / and confirm with .



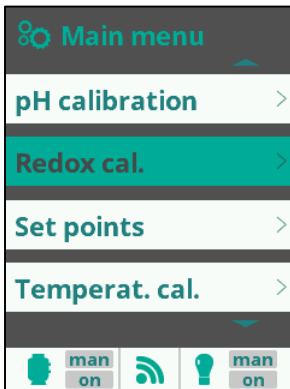
Setpoint

Set the redox setpoint using / and confirm with .

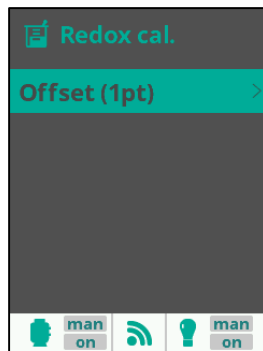
Proceed as described in the previous chapter to determine the setpoint.

6.4.3 1-point redox calibration

1-point calibration is carried out with the 465 mV buffer solution provided. Alternatively, redox buffer solutions with other mV values can be used. Never use buffer solution which is more than 12 months old.

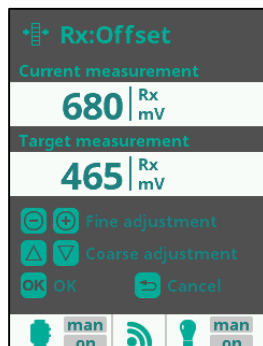


To set, select Redox cal. with / and confirm with .



1-point redox calibration

To set, select Offset (1pt) with / and confirm with .



Current measurement

Shows what value is measured with the current setting.

Target measurement

Allows you to enter the redox buffer solution used.

After correct entry, confirm the calibration with .

7 Description of the device



Necessary qualification:

Only specialists with both in-depth knowledge of swimming pool construction and in-depth knowledge of the installation of electrical and electronic devices may open the Salt Relax PRO or perform the connection work described below!



Danger caused by electrical current

The Salt Relax PRO is live as soon as voltage is applied to the power input. The chlorine production cell or additional functions may be switched on or switched over. Contact with live components can lead to an electric shock.

This may result in serious or even fatal injury and damage to material assets, and the following therefore apply:

- All such tasks must be carried out exclusively by adequately trained and experienced personnel!
- The device must always be de-energised before performing installation and maintenance work on it!
- Secure the device against being switched on while work is being performed on it!
- Additional modules must be installed/removed in de-energised state!
- Cables must also be connected in de-energised state!
- A safety feature which is independent of the controller should always be present!
- Where necessary, password protection for the main menu must be activated!
- The relevant country-specific safety regulations must be complied with!
- All safety features and protective devices must be refitted or rendered functional again immediately after completing work!
- Failure to follow the safety instructions can cause the device to malfunction, may lead to the risk of fatal injury and renders the warranty invalid!



ATTENTION

To prevent electrostatic discharge damaging the sensitive electronic components when you are performing work on the opened device

- If possible, earth yourself when working on the opened device.
- Avoid touching the electronic components unnecessarily.

7.1 Connections and fuses on the Salt Relax PRO



- 1 Cable grommet for temperature sensor
- 2 Connection for redox electrode
- 3 Connection for pH electrode
- 4 Connection for gas flow sensor (thin cable)
- 5 Connection for chlorine production cell (thick cable)
- 6 On/Off switch
- 7 Cable for power supply 230V/60Hz



- 1 Fuse 3.15A / slow-blow for the current-carrying relays (PH, AUX1 and AUX2)
- 2 Fuse 3.15A / slow-blow for power and control unit

7.2 Removing the housing front cover



ATTENTION

Disconnect the Salt Relax PRO from the power supply before opening it. It is not enough to simply switch the device off at the On/Off switch. Secure the device against being switched on unintentionally.

Proceed as follows to open the housing cover:

- Carefully push the two lower clips downwards and the two upper clips upwards and remove them.
- Carefully pull the housing front cover forwards until it is about 15 cm from the device. Carefully pull the connecting cable between main board and display out of the connector on the main board.
- Now you can carefully pull the cover further forwards.



Fitting the housing front cover

Carry out the steps described above in reverse order to fit the front cover. Make sure that all cables of connected external devices are routed cleanly behind the front housing cover. Check that the front housing cover is securely seated in the seal before sliding on the clips. It must be possible to slide the clips on easily.

7.3 Replacing the battery

Should you discover that settings, e.g. the time, are no longer correct when you switch the device on after leaving it switched off (de-energised) for some time, the battery may be empty.

In this case, replace the battery (lithium battery, Type CR2032). It is essential to observe the correct polarity (+ left, - right) when inserting the new battery.



7.4 Installing a cable grommet

An additional cable feed-through must be created in order to connect an external device (e.g. lighting) or an external sensor (e.g. paddle flow switch) to the Salt Relax PRO. There are push-outs on the bottom and sides of the front housing cover of the Salt Relax PRO for this purpose.

Proceed as follows:

- Select the push-out closest to the connecting terminal you wish to use.
- Press from the inside against the centre of the push-out until you can see the round shape on the outside of the housing. Now press from the outside against the centre of the circle. Repeat this step until the circular push-out is detached, leaving a round hole. If the hole is not perfectly circular, you can round it off carefully using a suitable file.
- Now place the cable gland in the hole from the outside and lock it in position from the inside with the cap nut.



Press from the inside



Press from the outside



Opening



Grommet from the outside



Cap nut inside

Proceed as follows to feed a cable through the cable grommet:

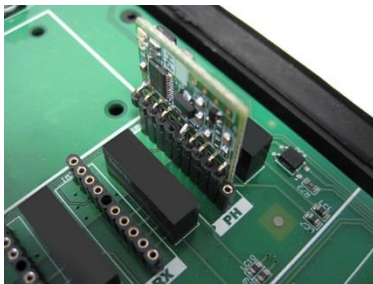
- Unscrew the nut of the cable gland until it is positioned on the very end of the thread. Alternatively, you can remove it completely.
- Remove the plug, leaving the seal in the screw fitting.
- Feed the cable through the nut and the cable gland into the clamping cavity. Make sure there is an adequate length of cable on the inside of the housing cover.
- Connect the cable as shown in the connection diagram.
- Tighten the nut (without exerting excessive force) to achieve reliable sealing.

7.5 Installing the pH and redox module

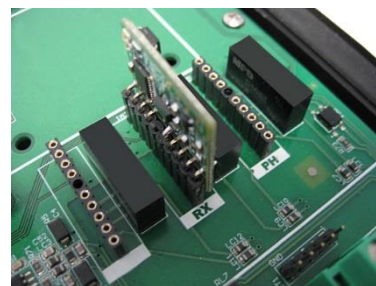
In order to use the pH option or the redox option, the corresponding module must be inserted into the device.

To do this, proceed as follows:

- Disconnect the Salt Relax PRO from the mains. It is not enough to simply switch the device off.
- Remove the front cover of the Salt Relax PRO (see Removing the housing front cover)
- Place the pH or redox module in the holder provided, as shown in the diagram. Observe the correct polarity.



Slot for pH module (PH)



Slot for redox module (RX)

- Close the cover again (see Removing the housing front cover)
- As soon as you reconnect the Salt Relax PRO to the power supply and switch it on, the software will detect the connected option and display the associated menus at the corresponding points.

7.6 Connecting terminals



Necessary qualification:

Only specialists with both in-depth knowledge of swimming pool construction and in-depth knowledge of the installation of electrical and electronic devices may open the Salt Relax PRO or perform the connection work described below!



ATTENTION

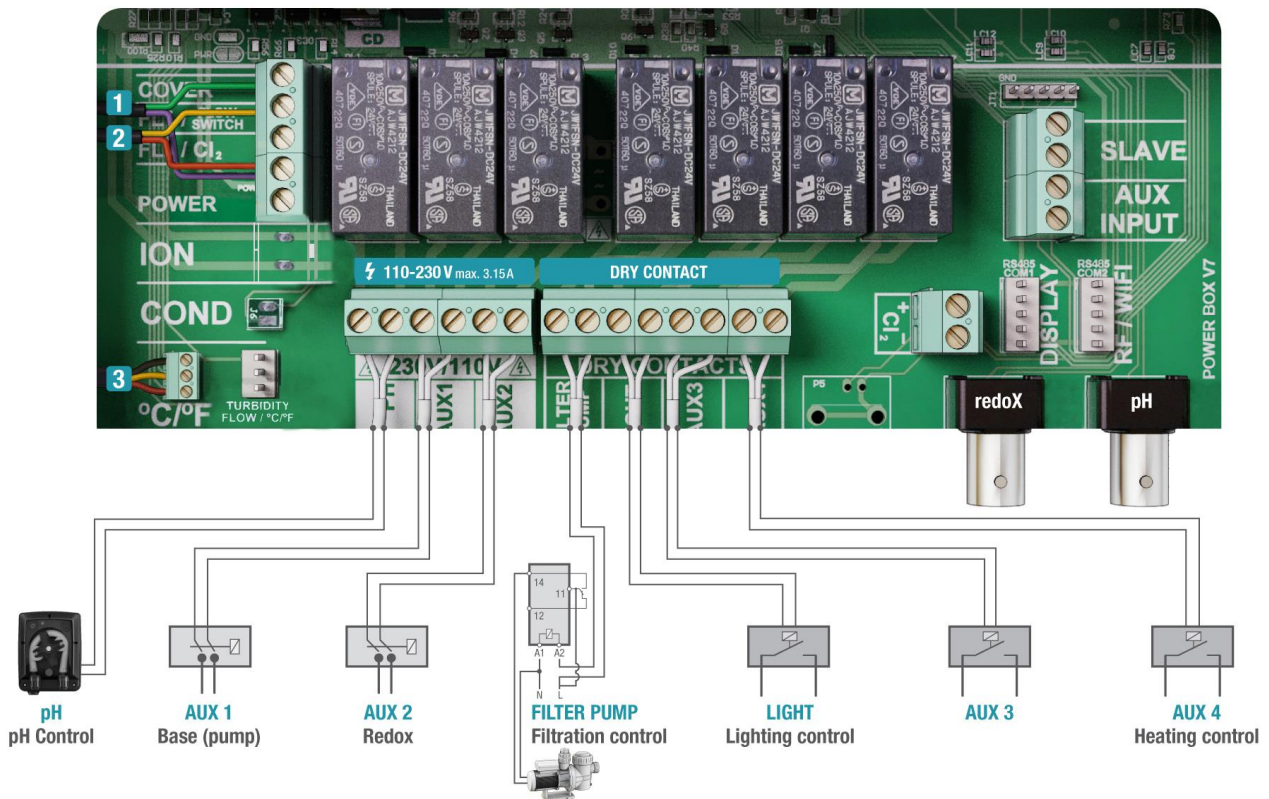
To prevent electrostatic discharge damaging the sensitive electronic components when you are performing work on the opened device:

- If possible, earth yourself when working on the opened device.
- Avoid touching the electronic components unnecessarily.



NOTE

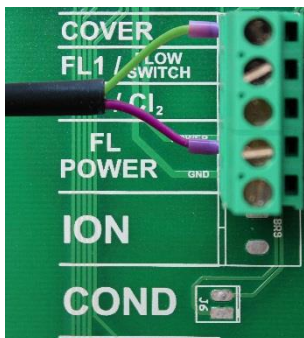
Observe the permissible maximum currents for the relays for switch outputs 1 to 3 (in total, not more than 3.15 A). If higher switching capacities are required, it is essential to interpose suitable circuit breakers!



1) Connection of signal – cover closed (floating contact)

Terminals:

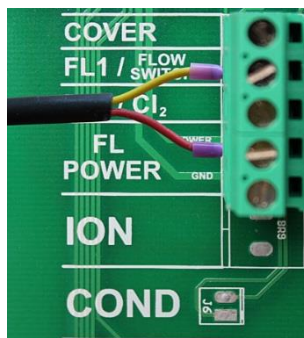
COVER and FL POWER/POWER



2) Additional flow switch (paddle flow switch)

Terminals:

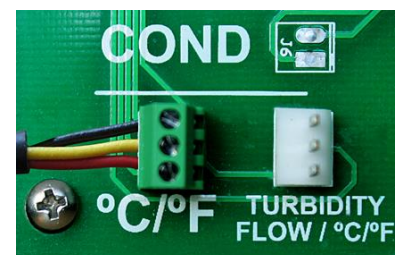
FL1/FLOWSWITCH and FL POWER/POWER



3) Temperature sensor

Terminals:

Top: black
Centre: yellow
Bottom: red



8 Troubleshooting and fault elimination


Nature of the fault	Possible cause	Remedial action
Salt Relax PRO controller		
The display of the Salt Relax remains dark	Device is not supplied with power	Insert the mains plug.
	Device is switched off (On/Off switch does not light up)	Switch the device on
	Cable connection between display and main board faulty, e.g. connector not plugged in	Check the connection
The message FLOW appears on the display	Plug-in/ cable connection is loose	Check the plug-in connection of the gas flow switch and, if installed, check that the paddle flow switch is correctly connected
	Gas flow switch crusted over	Clean the gas flow switch in the upper area of the cell.
	Paddle flow switch crusted over	Clean the paddle flow switch.
	Air in the gas flow switch	Check whether there is air in the pipes.
Chlorine production / cell		
Low indicator lights up in the main view of the display	Water in the pool is very cold	Check the water temperature: If the water is very cold, the display is normal and can be ignored. Less chlorine is produced, but very little disinfection agent is required for cold water.
	Low salt content in the pool	Check the salt concentration in the water and if necessary, add salt (1.5 - 2.5 g NaCl/l)
	High amount of limescale on the cell plates	Clean the cell plates of the chlorine production cell as described in the chapter Maintenance. At the same time, clean the paddle flow switch.
	Chlorine production cell is spent (very few or no gas bubbles on the cell blades)	Check whether the chlorine production cell is spent and replace it with a new one if necessary (note that the cell has a guaranteed service life of 5,000 hours) Note: When "Low" is displayed for the first time, indicating that the cell is spent, the cell will operate for approx. 3 more weeks before it ceases to function
Excess of chlorine in the water	Output of the chlorine production cell is set too high	Reduce the production intensity.
	If the redox option is used: redox setpoint faulty	Check the redox setpoint and the correlation between redox setpoint and the free chlorine value
	If the redox option is used: inspect redox electrode for <ul style="list-style-type: none"> - soiling - damage - calibration 	Redox electrode <ul style="list-style-type: none"> - clean - replace - calibrate
	In the case of manual chlorine dosing: overdosage (e.g. through manual shock chlorination)	Allow chlorine value to "sink" to suitable level
The level of free chlorine in the pool does not reach 0.8 ppm	Filtration runtime too short	Increase filtration hours
	Output of the chlorine production cell is set too low	Increase the intensity of electrolysis
	Salt concentration too low	Check the salt concentration in the water and if necessary, add salt (1.5 - 2.5 g NaCl/l)
	Isocyanuric acid content too high	Check the level of isocyanuric acid in the water (30-50 ppm) – if it is too high, dilute the water by backwashing the filter and then adding fresh water (check/adjust salt content)
	Measurement of free chlorine content faulty	Check whether the reagent of your measuring equipment has expired
The electrolysis system does not achieve maximum intensity	Unusually high number of people using the pool or increase in the water temperature	Trigger the Boost function. If the water temperature remains high for an extended period or a large number of people are using the pool, increase the output of the chlorine production cell.
	The pH value of the water is higher than 7.8	Adjust the pH value of the water to approx. pH 7.2
	Salt concentration too low	Check the salt concentration in the water and if necessary, add salt (1.5 - 2.5 g NaCl/l)
	Chlorine production cell contaminated or crusted over.	Clean the cell plates of the chlorine production cell as described in the chapter Maintenance. At the same time, clean the paddle flow switch.
	Chlorine production cell is spent (very few or no bubbles on the cell blades)	Check whether the chlorine production cell is spent and replace it with a new one if necessary (note that the cell has a guaranteed service life of 5,000 hours)

Nature of the fault	Possible cause	Remedial action
The titanium cell crusts over within one month	Very hard water and increased pH value and total hardness	Adjust the pH and total hardness
	Chlorine production cell does not clean itself, no polarity reversal	Check whether automatic polarity reversal is functioning (default setting: change pol 1 to pol 2 every 300 min)
	Polarity reversal too long for hardness of the water	Accelerate polarity reversal (automatic self-cleaning function) ATTENTION: If you accelerate polarity reversal, the service life of the cell (5,000h) is reduced accordingly. Setting to 200 min or less results in loss of warranty for the cell. Have this setting performed by a specialist service technician/installation engineer.

pH measurement

pH control measurement and device display differ	Calibration is faulty or has not been performed for an excessively long time	Recalibrate the system
Calibration error during pH calibration	Faulty input of calibration values	Repeat the calibration
	Electrode is dirty or faulty	Clean electrode in electrode cleaner and rinse in distilled water. If it is not possible to calibrate the electrode after this treatment, it must be replaced.
	Humidity in the cable combination	Dry or replace the cable combination
	Measuring amplifier is faulty	Device must be repaired or replaced

pH control / pH dosing

pH alarm (AL3) The pH control was not able to achieve the pH setpoint in the pool within the programmed maximum dosing time.	pH dosing pump not switched on (switch set to 0)	Switch pH dosing pump on (set switch to 1)
	pH Minus/pH Plus canister empty	Put full canister of pH Minus/pH Plus in place. In order to quickly fill the empty dosing hose, the pump can be set to switch position 2. Make sure you reset the switch to 1 as soon as the hose is filled again.
	Leak in the dosing line	Repair the dosing line. Caution! Leaking pH Minus/pH Plus can cause chemical burns. Wear gloves and safety goggles.
	Dosing rate of the pH dosing pump is too low	Increase the dosing rate by opening the red regulator of the dosing pump wider. To do this, set the pump switch to 0 and secure the pump against being switched on. Remove the transparent cover from the pump and adjust the red regulator using a slotted screwdriver. Do not switch the pump back to operating status (switch position 1) until you have refitted the cover. Reset AL3 with  after remedying the fault.
Dosing pump is not working although the measurement value on the device indicates that dosing should be triggered	Dosing relay is faulty	In the menu Relay configuration, assign the function pH to another relay. If necessary, the device must be repaired or replaced
	Dosing pump is faulty	Check dosing pump and replace if necessary
Dosing pump is working but there is no pH correction	pH Minus/pH Plus canister empty	Put full canister of pH Minus/pH Plus in place. In order to quickly fill the empty dosing hose, the pump can be set to switch position 2.
	Dosing system leaky, pH Minus/pH Plus is leaking	Check the entire dosing line and repair any leaks.

Redox measurement

Redox potential does not match the control measurement	Calibration is faulty or has not been performed for an excessively long time	Recalibrate the system
Calibration error during redox calibration	Faulty input of calibration values	Repeat the calibration
	Electrode is dirty or faulty	Clean electrode in electrode cleaner and rinse in distilled water. If it is not possible to calibrate the electrode after this treatment, it must be replaced.
	Humidity in the cable combination	Dry or replace the cable combination
	Measuring amplifier is faulty	Device must be repaired or replaced

Temperature measurement

Temperature display is faulty	Calibration is faulty or has not been performed for an excessively long time	Recalibrate the system
	Temperature sensor is faulty	Replace the temperature sensor.
	Humidity in the cable combination	Dry or replace the cable combination

Swimming pool

Oxidation on metallic parts of the swimming pool	The oxidised elements and/or the swimming pool are not adequately earthed	Have the earthing checked by a specialist.
	The oxidised elements are not made from stainless steel of an appropriate quality.	Use elements made from stainless steel of an appropriate quality.

9 Maintenance

The maintenance schedule lists only the minimum maintenance requirement. The frequency at which maintenance is required depends on the intensity of use.

The maintenance intervals are defined by the relevant, country-specific regulations! This means that maintenance intervals may be considerably shorter than those given here. The relevant country-specific regulations and standards must be complied with.



NOTE!

Only the manufacturer's spare parts and sensors may be used. Failure to observe this will result in loss of warranty.

9.1 Cell cleaning

The Salt Relax PRO is equipped with a programmable automatic cell cleaning function. This function is based on cyclical reversal of the polarity of the chlorine production cell. Reversing the polarity allows limescale crystals deposited on one side of the cell plates in operation to be removed automatically. The procedure for setting this function is described in the menu "Service settings."

You can shorten the polarity cycles if you find that limescale deposits tend to form in your chlorine production cell. However, please note that the guaranteed service life of 5,000 operating hours for the chlorine production cell no longer applies if you reduce the cycle time to 200 minutes or less.

If, on the other hand, you find that your chlorine production cell remains clean even after extended periods of operation, you can extend the polarity cycles, which increases the service life of the chlorine production cell.

If limescale deposits nevertheless form on the cell blades, you can remove the cell from the cell holder (it is imperative to close the bypass valves before doing this. Caution! Water may emerge) and immerse it in a bath of BAYROL Decalcit Becken. Clean the paddle flow switch at the same time, as it may also have limescale deposits or soiling.



NOTE!

It is imperative to remove the cell from the cleaning bath as soon as the deposits have been dissolved. Leaving the cell in the solution for longer will result in damage which is not covered by the warranty!

Never try to remove the deposits mechanically (e.g. with a brush or metal instruments). This may result in irreparable damage to the cell.

9.2 General maintenance

- Check the water values as listed in the table in the chapter Water chemistry.
- Perform regular backwashing to maintain filter performance. Check the salt content after adding fresh water. If necessary, add salt to compensate for the loss due to backwashing.
- Clean the skimmer/overflow channel of your pool regularly.
- Use your floor cleaner as usual.
- From time to time, carry out a visual inspection of the system. In particular, examine all components for leakage and check the condition of the chlorine production cell.
- Replace the electrodes (pH and redox, if used) and the dosing hose of the pumps annually.

9.3 Cleaning

If necessary, clean the surface of the device with a soft, lint-free cloth. You can moisten it with a little water if required. Never use aggressive cleaning agents.

9.4 Replacing the dosing pump hose

The function of the pump and the procedure for replacing hoses are described in the manual supplied with the pump.



Danger caused by chemicals

Caustic product residue may emerge when the pump hose is pulled off. => Serious health risk (chemical burns) and damage to material assets. For this reason:

Always drain the pump hose and supply lines first, wear safety goggles and safety gloves if necessary and protect the surrounding area with a cloth against leaking product residue.



Danger caused by rotating parts

The rotor of the dosing pump may start up suddenly => danger of crushing fingers. For this reason:

Ensure that the dosing pump remains disconnected from the operating voltage while you are replacing the hose.

10 Taking out of service for the winter

No special measures are required if you are taking the equipment out of operation for a short period (e.g. a few days).

If operation is to be interrupted for several weeks, for example during the winter, the following work must be performed:

- Protect circulation lines and the bypass against freezing by draining off the water.
- If you wish to leave the system switched on over the winter, activate the Antifreeze function. However, this may not prevent the water from freezing at exceptionally low temperatures.
- If necessary, remove the suction line from the canister and rinse it with water.
- Close the pH packaging, store it in a cool, dry place and protect it against UV radiation.
- Rinse the hose pump with water.
- Disconnect the device from the mains.
- Remove dosing hoses from the pump.
- Remove glass electrodes (pH / redox electrode) from their holders and seal off the threaded openings.
- Store the electrodes in a moist and frost-free location. To do this, fill the transport container with water (e.g. pool water, do not use distilled water).

To put the unit back into operation after the winter, proceed as for initial installation.

In addition, all components must be inspected for correct functioning.

All dismantled parts (electrodes, dosing hoses) must be refitted in their correct positions.

Check the settings of the Salt Relax PRO. Follow the procedure for initial commissioning and calibrate the electrodes as described.

11 Decommissioning

Before disposing of the device at the end of its service life, it must be thoroughly rinsed and drained. The device was manufactured in accordance with the ROHS Directive and the Electrical and Electronic Equipment Act. It must not be disposed of with household waste.

Hand the device in to a suitable and designated collection facility.

12 Technical Data

Display	2.8" TFT colour display
Operation	Software-based operation via 6 keys
Electronics	32bit microprocessor
Operational safety	Password protection for Service level
Language selection	German, English, French, Spanish, Italian
Salt content	1.5 g/l – 100 g/l
Recommended pool size	Up to 70m ³ (moderate climate)
Adjustment of cell output	0 – 100 %, adjustable in increments of 1 %
Reduced production with pool cover closed	Yes, reduction freely adjustable via external signal from the pool cover
Increased production	Boost function
Automatic cell cleaning	Polarity reversal, cycles adjustable from 1 to 999 minutes
Operating hour counter	Yes, can be viewed by the user
Flow, electrolysis cell	4 m ³ – 30 m ³
Flow monitoring	<ul style="list-style-type: none"> • Gas sensor in the electrolysis cell • Paddle switch
Dimensions, electrolysis cell holder	310 x 63 mm
Cable, electrolysis cell	1.5 m
Max. pressure, electrolysis cell	3.5 bar
Cell service life	At least 5,000 hours
Cell material	Titanium, coated with ruthenium/iridium
Permissible water temperature	1 °C – 45 °C
Temperature measurement	<ul style="list-style-type: none"> • Measurement via LM35 sensor, stainless steel • Measuring range 0 – 100 °C • Resolution 1 °C • Calibration 1-point calibration
Measurement of the pH value (optional)	<ul style="list-style-type: none"> • Measurement via combination electrode • Unidirectional control; bidirectional control optional • Measuring range pH 0 – 10 pH • Resolution pH 0.1 pH • Calibration pH 1- or 2-point calibration (pH 7 and pH10)
Redox measurement (optional)	<ul style="list-style-type: none"> • Measurement via combination electrode • Measuring range Rx 0 – 1000 mV • Resolution Rx 1 – 3 mV • Calibration Rx 1-point calibration
Measurement inputs	<ul style="list-style-type: none"> • pH and redox BNC • Temperature terminal
Alerts	<ul style="list-style-type: none"> • Too little salt in the water • No flow through electrolysis cell • pH dosing (only if pH module is used) • pH too high/too low (only if pH module is used) • pH dosing alarm (only if pH module is used)
Switching outputs	<ul style="list-style-type: none"> • 3 x 110 – 230 V • 4 x floating
Electrical connection	110 – 240 V~, 50/60 Hz
Power consumption	Max. 120 W
Protection class, controller	IP 54
Weight, controller	approx. 2.8 kg
Dimensions, controller	237 x 300 x 152 mm (W x H x D)

13 Warranty

Object under warranty

For the fixed duration of the warranty, any part recognised by BAYROL as defective will be repaired or replaced by a new part or a part in good condition.

The warranty is limited to the defective parts. The user will bear the transport costs for any return consignment. Wage costs will not be covered by the manufacturer.

There is no entitlement to compensation for downtimes and loss of use in the event of a repair.

The manufacturer's original spare parts must be used.

BAYROL accepts no liability for installation errors or damage resulting from inappropriate use. BAYROL cannot be held liable for damage arising due to failure to comply with the safety instructions in this manual or generally valid safety regulations.

Duration of the warranty

Device:	36 months
Chlorine production cell:	36 months or 5,000 hours of operation (whichever occurs first) Attention: The warranty for the chlorine production cell expires if a time shorter than 200 minutes is set.
pH/redox sensors and pump hoses:	6 months

Warranty terms

Our devices are manufactured with the greatest possible care and subjected to continuous quality testing. In line with the latest technological developments, we are constantly improving and modifying our products. This means that improvements to the devices may be introduced at any time during the term of this warranty.

The device is designed for use in Europe, North Africa and the Near and Middle East. The warranty will be rendered invalid if the device is used outside these areas.

Transport damage

Our devices and spare parts are always transported at user's risk. Prior to accepting the goods, the user must check that they are in perfect condition. Transport damage must be entered on the forwarding agent's consignment note.

BAYROL accepts no liability for transport damage.

14 EC Declaration of Conformity

EC Declaration of Conformity

We,

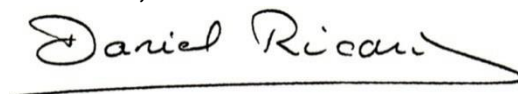
**Bayrol Deutschland GmbH
Robert-Koch-Str. 4
82152 Planegg/Steinkirchen**

, hereby declare that the models of the product named in the following that we bring into circulation meet the requirements of the indicated EC directive.

This declaration will lose its validity in the event of uncoordinated modifications to the product.

Product model:	Salt Relax Salt Relax PRO
Brand:	BAYROL
Series no.:	See type plate
EC directives:	EC - Low Voltage Directive (2006/95/EC) EC - EMC Directive (2004/108/EC)
Harmonizing standards used:	UNE-EN 60335-1: 2002 + A1: 2004 + A11: 2004 + A1: 2005 + CORR: 2007 + ERR: 2005 + A2: 2006 + A12: 2006 + A2: 2007 + A13: 2008 + CORR2010 + CORR2: 2010 + A15: 2011 (PARTIAL) UNE-EN 60335-2-108: 2008 UNE-EN 61000-6-1: 2007 UNE-EN 61000-6-3: 2007 UNE-EN 61000-3-2: 2006 + A1: 2010 + A2: 2010 UNE-EN 61000-3-3:2009 UNE-EN 55014-1: 2008 + ERR: 2009 + / A1 / 2009 + A2: 2012 UNE-EN 55014-2: 1998 / A1:2002 / A2: 2009 EN 301489-1 v1 8.1 (2008-02)

Date, manufacturer signature: **01.03.2015,**



Signer's information: **Managing Director Bayrol Group**