

Automatic^{Cl/pH}

The various screens, menus and messages in detail. (V1.0)

For more information, or to complete a diagnostic of the device's operation, please visit diagnostic.bayroltechnik.com

1 Home screen

Measured parameters

```
pH      Redox
7.2     650 mV
optimal optimal
        Pump >>>
```

Current dosing information

Parameter condition information

```
pH      Redox
7.2     650 mV
Waiting...
Filter pump off
```

Current measurement

Waiting for the
filtration pump to start

2 Standby screens

```
>>> Waiting <<<
for activation
of the filter pump
>More Info with OK
```

Standby screen - device paused,
waiting for the filtration pump to start.

```
>>> Automatic <<<
operation
```

Standby screen - device in operation,
there is a difference between the
measurement and the setpoint, but the
device is operating normally.

```
Water values
are
>>> optimal <<<
```

Standby screen - device operating, the
setpoint has been reached.

```
>>> Waiting <<<
Start delay
Ready in 5 min
>Finish with OK
```

Standby screen - the filtration pump
has just started, the device is waiting
for 5 minutes before starting dosing.

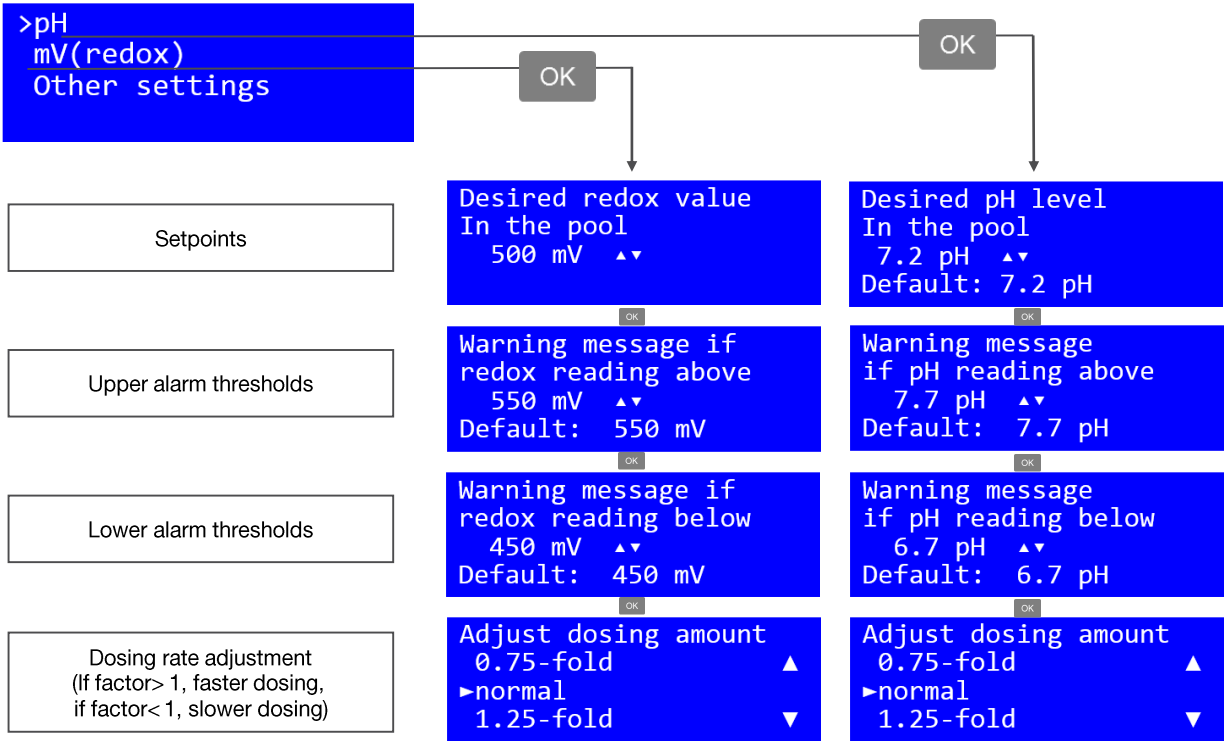
3

Device settings

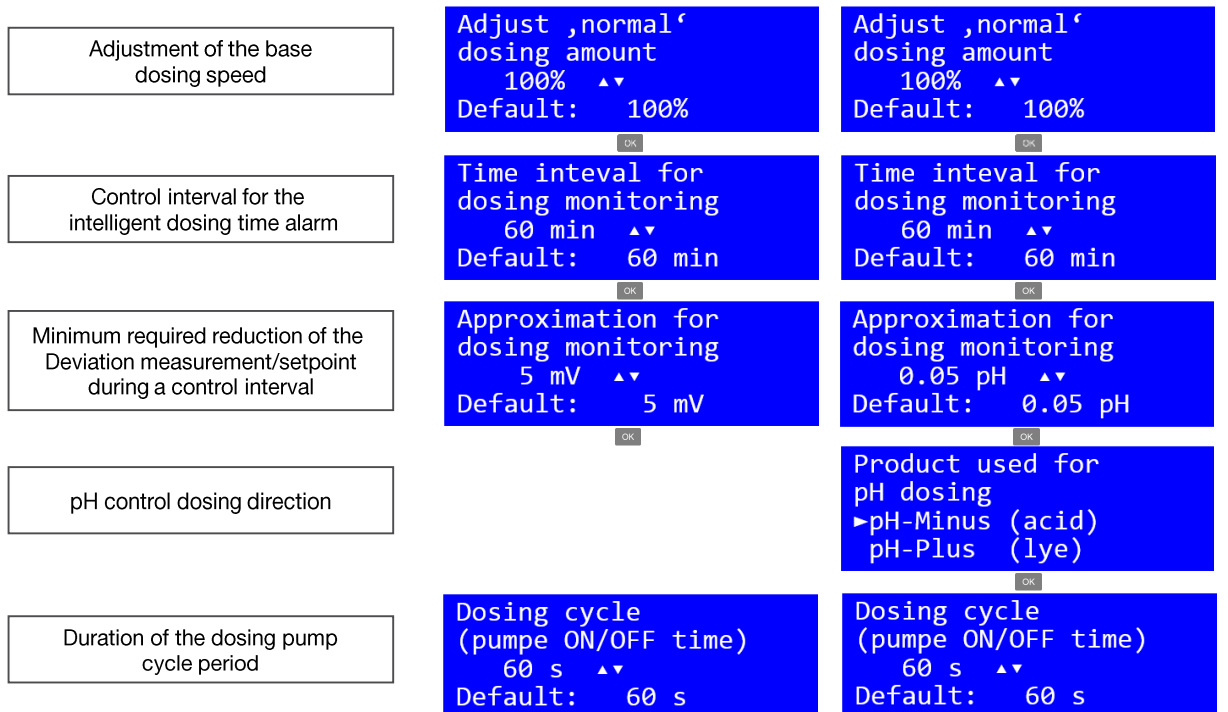
When used for the first time the devices in the Automatic range offer a full commissioning protocol, which ensures that all the necessary settings are made.

This protocol can also be re-run from the menu (from the home screen, press "OK" – "Commissioning").

The settings can also be changed manually from the settings menu.

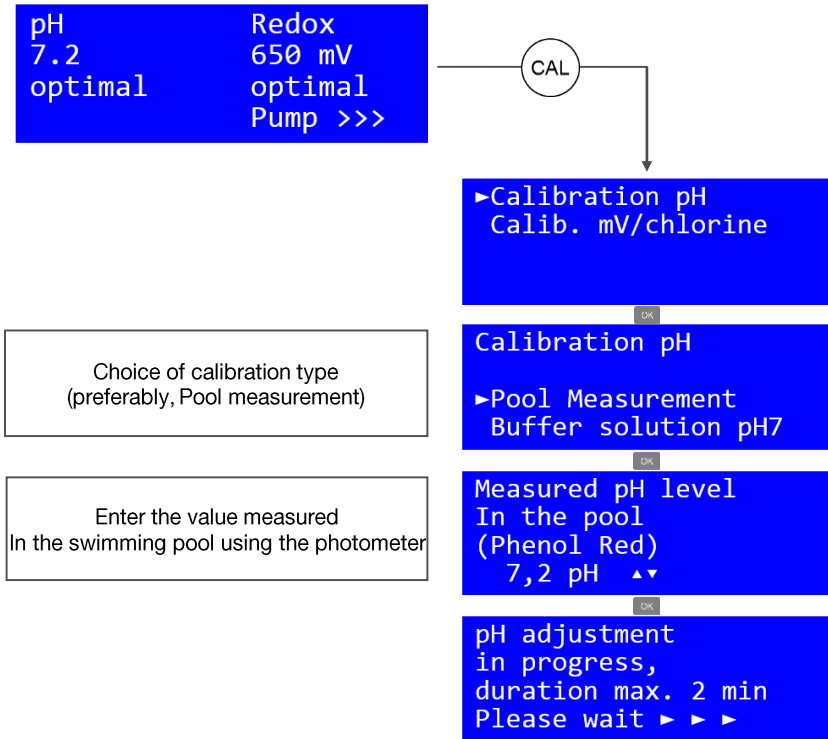


Additional parameters are available in the "Expert" menu (from the home screen, press "OK" – "Expert menu" – hold down "OK" for 3 seconds to confirm).



4 pH calibration

For the best results, ensure that the pH sensor is correctly calibrated. This check is an integral part of the commissioning protocol, but it should also be repeated regularly during the season by analysing the swimming pool water. If necessary a new calibration procedure can be completed by pressing the "CAL" key and following the instructions below:



Note: If there is no precise measuring system (photometer, comparator) available, the pH sensor can be calibrated using the supplied pH7 buffer solution.

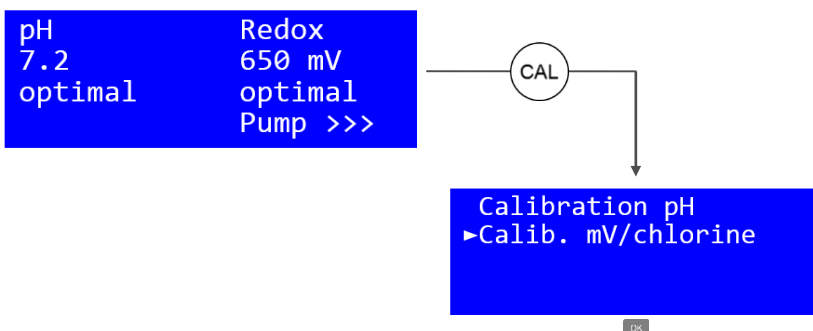
5 Determining the redox setpoint

Before using an Automatic^{Cl/pH} control device, it is essential to determine the redox setpoint. To do this, the pool water must be prepared in advance, in keeping with the pool usage conditions.

The BAYROL recommended values are as follows:

pH:	7.2 – 7.4
Free chlorine:	0.6 – 1.0 mg/l
Total alkalinity (TAC)	80 – 120 ppm

The commissioning protocol for the Automatic^{Cl/pH} includes a tool to help determine the setpoint; this tool can also be reused later by pressing the "CAL" button.



5 Determining the redox setpoint (continued)

Adjustment mV/Cl

▶ Start now
Cancel

"Dosing" mode automatically enables the quantity of Chloriliquide required to achieve the desired concentration to be injected

How shall chlorine be added?

▶ Dosing
Manually

Enter the required free chlorine value (in mg/l) for the pool

Desired chlorine level in the pool
0.7 Cl ▲▼
Default: 0.7 Cl

Enter the free chlorine value (in mg/l) as measured in the pool (using a photometer)

Measured chlorine level in the pool (DPD measurement)
0.0 Cl ▲▼

Now there are three possible scenarios:

1 – The value measured on the photometer corresponds to the desired value. Automatic^{Cl/pH} will then measure the signal from the redox sensor and propose the measured value as a new setpoint. The user then has the option of adjusting the value before confirming it.

2 – The measured value is higher than the desired value. It is then advisable to reduce the level of chlorine in the pool, by adding chlorine neutraliser for example, and then repeat the procedure.

3 – The value measured is lower than the desired value. In "Dosing" mode, Automatic^{Cl/pH} calculates the Chloriliquide dosing time necessary to reach the required value and, after user confirmation, starts the dosing pumps.

6 Dosing time alarms

The devices in the Automatic range come with an intelligent dosing time alarm, which operates as follows:

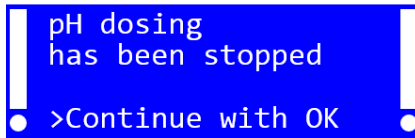
If there is a difference between the measurement and the setpoint for one of the parameters the device injects the corresponding product. At the same time it monitors the effect of the injection on the parameter concerned, and checks that the measurement made by the sensor is getting closer to the setpoint. For the dosing to continue, the deviation between the measurement and the setpoint should reduce by a minimum value (referred to as "approximation for dosing monitoring") within a given time-frame (referred to as "Time interval for dosing monitoring").

The default dosing control time interval is set to at least 60 minutes and the required approximation at 0.03 pH unit or 3 mV, which means that in 1 hour the pH reading should be at least 0.03 closer to the setpoint or the measured redox potential should be at least 3 mV closer to the setpoint.

For example, if the setpoint is 700 mV and the initial measurement is 679 mV, at the end of the first hour, the dosing will continue if the measurement is higher than 682 mV, and then at the end of the second hour if the measurement is higher than 685 mV and so on, leaving 7 hours in total to close the gap. Conversely, if the Chloriliquide injection pipe leaks and the Automatic^{Cl/pH} is controlling the Chloriliquide dosing, the latter will be stopped after only 1 hour.

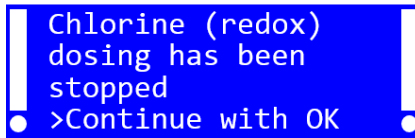
These parameters can be modified in the "expert" menu (on the home screen, hold down "OK" for 3 seconds).

In the event that the dosing time alarm is triggered, the Automatic^{Cl/pH} will display the following messages:



pH dosing
has been stopped
>Continue with OK

Probable cause	Solution
The ph-Minus container is empty	Replace the ph-Minus container, press "OK" then "Restart dosing".
The dosing rate of the pH-Minus corrector is too low	Check the volume of the pool entered in the "Settings – Other settings" menu. If the volume entered is correct, increase the dosing rate in the "Settings – pH – Adjust dosing amount" menu. The dosing rate can be increased applying a multiplication factor greater than 1.
The pH-minus injection pipe has a leak or is blocked	Check the pipe and the injection valve and replace if necessary.
The pH sensor is faulty	To check whether the pH sensor is faulty go to the "Test pH measuring" by pressing "CAL (3s) – Test pH measuring"; if the test fails replace the pH sensor.



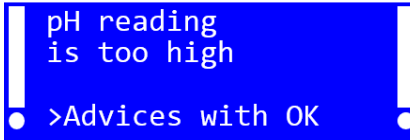
Chlorine (redox)
dosing has been
stopped
>Continue with OK

Probable cause	Solution
The Chloriliquide container is empty	Replace the Chloriliquide container, press "OK" then "Restart dosing".
The dosing rate of the Chloriliquide is too low	Check the volume of the pool entered in the "Settings – Other settings" menu. If the volume entered is correct, increase the dosing rate in the "Settings – mV (redox) – Adjust dosing amount" menu. The dosing rate can be increased applying a multiplication coefficient greater than 1.
The Chloriliquide injection pipe has a leak or is blocked	Check the pipe and the injection valve and replace if necessary.
The redox sensor is faulty	To check whether the redox sensor is faulty go to the "Test mV/chlorine" by pressing "CAL (3s) – Test mV/chlorine"; if the test fails replace the redox sensor.

7 Threshold alarms

The threshold alarms are triggered if the values measured by the sensors exceed the thresholds defined in the menu for the relevant parameter. It is advisable to measure the pH and/or chlorine levels of the swimming pool water to determine if the fault is caused by the sensor or the water quality.

If the thresholds are exceeded the Automatic^{Cl/pH} may display the following messages:



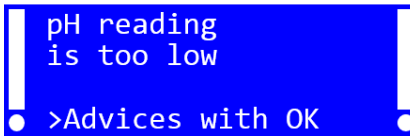
pH reading
is too high
>Advices with OK

Example 1: the measurement corresponds to the value displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The pH-Minus container is empty, the pH value has increased and exceeded the alarm threshold.	Replace the pH-Minus container

Example 2: the measurement does not correspond to the value displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The pH sensor is not calibrated correctly	Adjust the pH measurement by pressing "CAL – Calibration pH" During calibration, it is better to use the "Pool measurement" method and measure the pH value using a photometer.
The pH sensor is faulty	To check whether the pH sensor is faulty go to the "Test pH measuring" by pressing "CAL (3s) – Test pH measuring"; if the test fails replace the pH sensor.



pH reading
is too low
>Advices with OK

Example 1: the measurement corresponds to the value displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The dosing rate of the pH-Minus corrector is too high	Check the volume of the pool entered in the "Settings – Other settings" menu. If the volume entered is correct, reduce the dosing rate in the "Settings – pH – Adjust dosing amount" menu. The dosing rate can be reduced applying a multiplication factor smaller than 1.

Example 2: the measurement does not correspond to the value displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The pH sensor is not calibrated correctly	Adjust the pH measurement by pressing "CAL – Calibration pH" During calibration, it is better to use the "Pool measurement" method and measure the pH value using a photometer.
The pH sensor is faulty	To check whether the pH sensor is faulty go to the "Test pH measuring" by pressing "CAL (3s) – Test pH measuring"; if the test fails replace the pH sensor.

7 Threshold alarms (continued)

Redox reading
is too low
 >Advices with OK

Example 1: the chlorine concentration corresponds to the redox measurement displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The Chlorilquide container is empty, the free chlorine value has dropped and gone below the alarm threshold.	Replace the Chlorilquide container.

Example 2: the chlorine concentration does not correspond to the redox measurement displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The redox sensor is faulty	To check whether the redox sensor is faulty go to the "Test mV/chlorine" by pressing "CAL (3s) –Test mV/chlorine"; if the test fails replace the redox sensor.

Redox reading
is too high
 >Advices with OK

Example 1: the chlorine concentration corresponds to the redox measurement displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The dosing rate of the Chlorilquide is too high	Check the volume of the pool entered in the "Settings – Other settings" menu. If the volume entered is correct, reduce the dosing rate in the "Settings – mV (redox) – Adjust dosing amount" menu. The dosing rate can be reduced applying a multiplication coefficient smaller than 1.

Example 2: the chlorine concentration does not correspond to the redox measurement displayed on the Automatic^{Cl/pH}

Probable cause	Solution
The redox sensor is faulty	To check whether the redox sensor is faulty go to the "Test mV/chlorine" by pressing "CAL (3s) –Test mV/chlorine"; if the test fails replace the redox sensor.