



Technical instructions v4.0

PHILEO LT

pH regulation

Warning
 Read carefully these intructions
 before installing, putting into
 service or using this device.



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Référence	Version	Date
MPNT0008	V4.0 - EN	05/06/2018

TECHNICAL CHARACTERISTICS

<p><u>General</u> Dimensions (lxhxd) in mm Weight Voltage Watertight enclosure Insulation</p>	<p>140x290x90 1.1 kg 230V / 50Hz IP-54 Class II</p>
<p><u>pH-regulation</u> Measurement resolution Probe Calibration</p> <p><u>Dosing pump</u> Type Flow rate</p>	<p>+/- 0,1 Combined electrode at pH 7</p> <p>Peristaltic 2 l/h</p>
<p><u>Supplied accessories</u></p>	<ul style="list-style-type: none"> • 4 m of tubing • 1 calibration solution at pH7 • 1 pH probe • 1 probe holder • 1 Injector • 1 suction strainer • 2 50 mm clamp saddles

WARNING: THIS EQUIPMENT IS DESIGNED TO PROVIDE METERED DOSES OF PH CORRECTOR ESPECIALLY FOR SWIMMING POOLS. IF IT IS USED WITH ANOTHER TYPE OF SOLUTION, PLEASE CHECK THE COMPATIBILITY OF THE EQUIPMENT WIT THE MANUFACTURER.

ITS USE WITH HYDROCHLORIC ACID AT MORE THAN 10% SOLUTION IS NOT RECOMMENDED.

WHEN THE DEVICE IS METERING DOSES, THE PUMP DOES NOT RUN CONTINUOUSLY BUT FOR ABOUT 1 MINUTE IN 2.

PRESENTATION

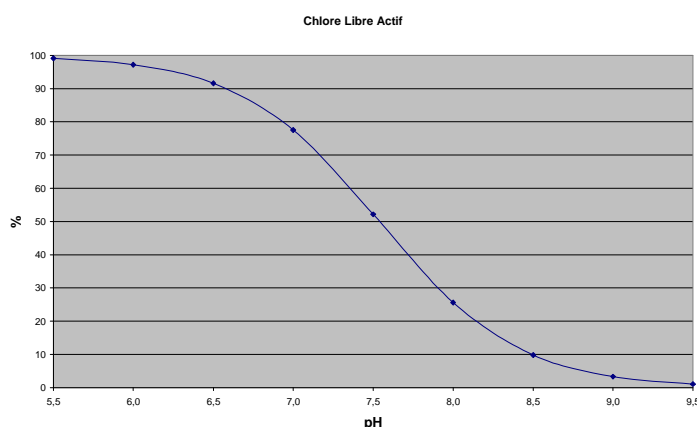
This regulation device maintains the pH of your swimming pool using a pH correction solution.

The pH or potential hydrogen measures the degree of acidity of the water. Its value is between 0 and 14. A solution where the pH is equal to 7 is neutral. If it is lower than 7, the solution is acid. If it is higher, the solution is said to be basic or alkaline.

For the comfort of the swimmers, the effectiveness of the treatment and the reliability of the installation, the pH of swimming pool water should be maintained around 7.

It is generally considered that a pH value between 6.8 and 7.8 is correct.

Where the water is too acid (pH <6,8), it is harmful to the mucosa, promotes corrosion of metal parts and may damage plastic (liners). Where water is too alkaline, (pH > 7.8), it can in its turn be too aggressive (caustic) and reduce the effectiveness of chlorine considerably as shown by the graph hereunder.



All this shows the importance of pH regulation when a swimming pool is treated with chlorine. Where treatment by electrolysis is used, pH has a tendency to increase constantly due to the presence of salt in the water, making pH regulation all the more necessary.

Particularly easy to use, this device has 4 preset values : 7 / 7,2 / 7,4 / 7,6.

Although it is delivered already calibrated, users should check the calibration once a month or more if necessary after installation. In order to do this, the instructions in the paragraph concerning CALIBRATION should be followed.

In pH+ mode, the liquid to inject should be a basic solution (pH+, pH enhancer). The device will inject the solution if the measured pH value is too low (lower than the set value).

In pH- mode, the liquid to inject should be an acid solution (pH-, pH reducer). The device will inject the solution if the measured pH is too high (higher than the set value).

OPERATION

The device is powered on by the on/off switch. The pH regulation must be connected on a socket powered by the filtration. Wenn the filtering is off, no light is on.

This pH regulation has one button and 10 indicator lights.

The user set the required pH value thanks to the button and the device will automatically regulate it (after the calibration has been done).



REGULATION MODE

Two indicator lights show the regulation mode of the device.

In pH+ mode, the liquid to inject should be a basic solution (pH+, pH enhancer). The device will inject the solution if the measured pH value is too low (lower than the set value).

In pH- mode, the liquid to inject should be an acid solution (pH-, pH reducer). The device will inject the solution if the measured pH is too high (higher than the set value).

To select the regulation mode :

1. Turn the device off (with the on/off switch) and wait 20 seconds min.
2. Press the preset value button and **maintain it pressed**
3. Turn the device on
4. Release the button. Now it is possible with the preset value button to choose between the pH+ mode (pH+ light is on) and pH6 mode –pH- light is on)
5. Once the right mode has been selected, turn the device off.
6. Turn the device on and check if the right mode has been selected.

Caution : Changing the regulation mode deletes the previous calibration. This is therefore required to proceed to a new calibration after any regulation mode changing.

LOWER PH LIGHT

When the left light is on, it means that the water pH value is lower than the set value :

- If the selected mode is pH-, THE PUMP DOESN'T RUN.
- If the selected mode is pH+, THE PUMP RUNS as long as the measured pH doesn't reach the set value. The pH corrector is injected into the discharge pipeline. For a good dilution of the chemicals the pump runs 1 minute and then stops 1 minute before a restart if the measured pH value is still not correct.

CORRECT PH LIGHT

When the central light is on, it means that the water pH value is equal to the set value. THE PUMP DOESN'T RUN .

HIGHER PH LIGHT

When the right light is on, it means that the water pH is higher than the set value :

- If the selected mode is pH+, THE PUMP DOESN'T RUN
- If the selected mode is pH-, THE PUMP RUNS as long as the measured pH doesn't reach the set value. The pH corrector is injected into the discharge pipeline. For a good dilution of the chemicals the pump runs 1 minute and then stops 1 minute before a restart if the measured pH value is still not correct.

Both red lights « lower pH » and « higher pH » are on in case of a measuring error. It means that the measured value is <4.5 or >9.5. It is recommended to check if the probe is well connected to the control panel, if there is water in the pipe where the pH probe has been installed. It is eventually helpful to test the probe in a glass with tap water to check if the pH value bounces back.

SAFETY LIGHT

For reasons of safety, if the injection of pH corrector has no effect after 2 hours of operation, the dosing pump stops until the next filtration cycle and the « safety light » lights up to show that the system needs to be checked. In this case, the reliability of the pH measurer should be tested and the level of pH corrector should be checked.

CALIBRATION

The calibration of the probe ensures that the measurement is right and that possible shifts are prevented.

Before starting the calibration process you should first :

- Stop the filtration (PHILEO LT switched off)
- Remove the probe from its holder, rinse and dry it.
- Close off the probe holder (with a money coin)

Calibration is therefore carried out as follows:

1. Submerge the probe in the supplied pH7 calibration
2. Restart the filtration (PHILEO LT switched on)
3. **Wait 1 minute minimum as long as the measure is fixed**
4. Press longer than two seconds on the preset values button. The pH 7.0 light is blinking and
 - a. Also the central light « pH OK » if the measure corresponds to a pH value between 6.5 and 7.5 (correct calibration)
 - b. Both red lights « lower pH » and « higher pH » in case of a wrong calibration. It means that the measure is <6.5 or >7.5. In this case please check the probe and/ or the buffer solution.
5. Press the selection key to confirm the calibration
6. Stop the filtration (PHILEO LT switched off)
7. Place the probe in its probe holder on the pipe
8. Put the filtration on (PHILEO LT switched on)

The calibration procedure is finished. In order to avoid measuring errors due to the ageing of the probe, calibration should be checked regularly (approximately once a month).

Important : after opening, the calibration solution keeps for a maximum of a few months. It should be renewed each season as a minimum.

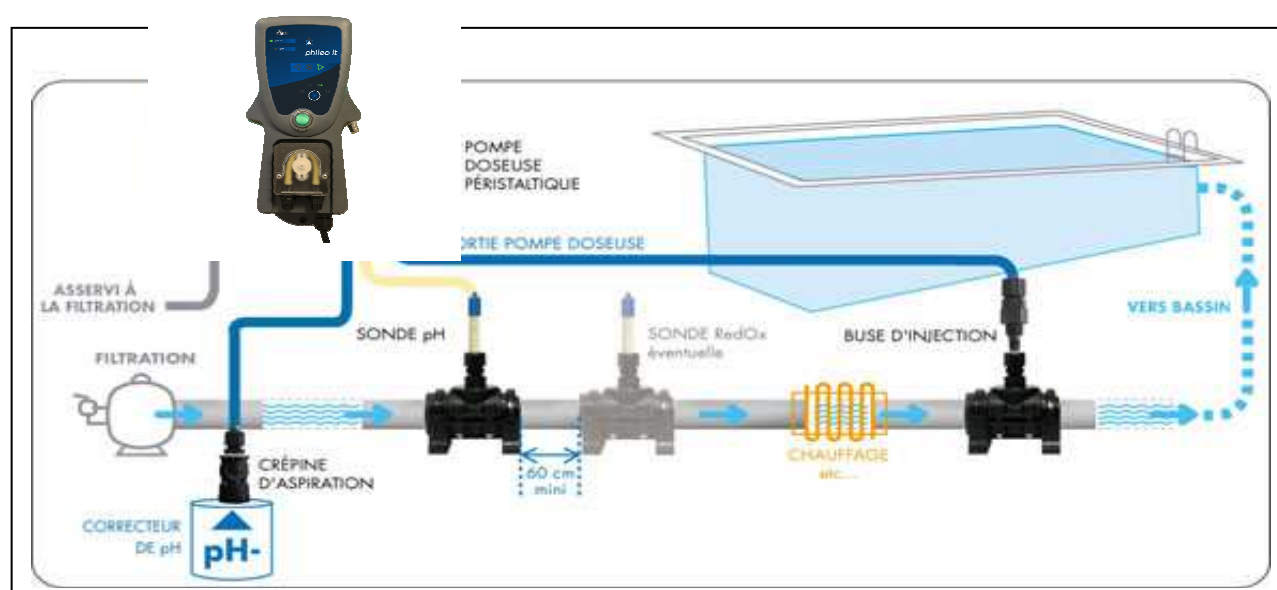
HYDRAULIC CONNECTION

INSTALLATION DIAGRAM

The different parts of the PHILEO LT needing to be installed into the swimming pool pipework are :

- The pH probe which must be positioned directly after the filter, at least a minimum of 60cm from any other measuring devices. Installation is carried out using a 63 or 50 mm clamp saddle.
- The pH injector should be positioned just before the outlet into the swimming pool. Installation is carried out using a 63 or 50 mm clamp saddle.

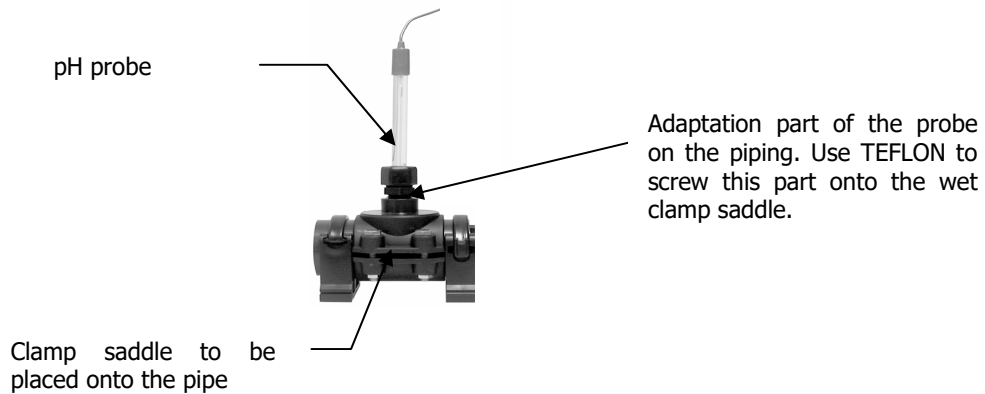
If a heater and/or an electrolysis cell are used, they should be installed between the pH probe and the pH injector as shown in the diagram below.



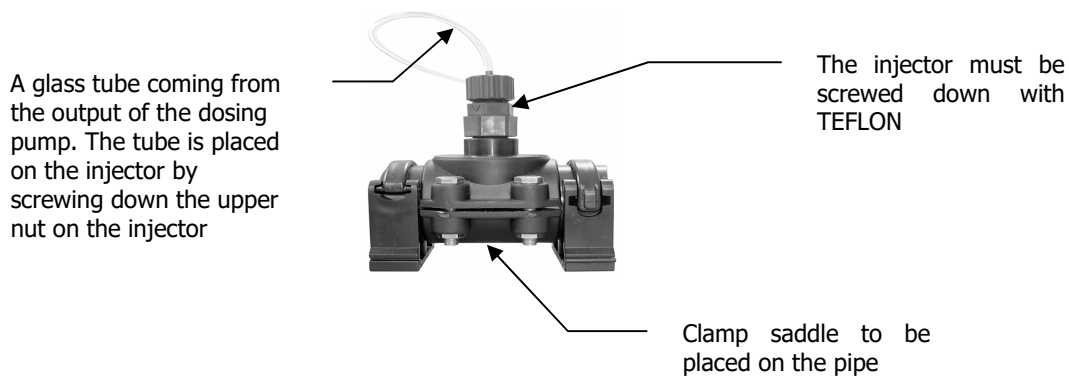
INSTALLATION OF THE PH PROBE

The probe is used for measuring the pH in the pool by supplying a signal to the electric unit.

REMOVE THE PROTECTING CAP FROM THE PROBE.

**INSTALLATION OF THE INJECTOR**

The injector allows the necessary quantity of acid to be injected into the pool to correct the pH in the water. The injector must categorically be placed after the pH probe and as close as possible to the input of water in the pool.



ELECTRICAL CONNECTION

Before connecting the PHILEO LT to the main power supply, it is essential that the power supply is protected by a 30mA residual current device

The power supply must be protected against possible over-voltage and overload.

THE PHILEO LT MUST BE CONNECTED ON A 230 V OUTPUT CONTROLLED BY THE POOL FILTRATION SYSTEM.

The PHILEO LT is provided with a pre-wired power supply cable.

PROBE MAINTENANCE

When a pH probe is immersed in water, a film forms around the glass bulb at its tip and the thickness increases with time.

This invisible film induces always almost longer response time, a degradation of the slope and a drift of the point 0. The drift of the point 0 can be easily compensated by a regular calibration. Increasing temperature is also an important factor of aging.

SENSOR PROTECTION

Never store the sensors in distilled water. Sensors that have been stored wet can be reused immediately. Sensors stored "dry" require several hours of rehydrating but "age" less. As a result we recommend:

- long-term dry storage
- short-term storage in a KCl 3M solution or, failing this, in tap water.

PROBE REGENERATION

Sensor service life can be extended by regular regeneration. To regenerate a sensor, leave it to soak in a solution of diluted hydrochloric acid (HCl 0,1M). To obtain this type of solution, add a few (8 to 10) drops of hydrochloric acid (HCl at 37%) to half a glass (5cl) of tap water.

When is regeneration possible?

- When the slope is too weak (often due to a polluted or clogged junction)
- When the response time is too long
- When point 0 has shifted.

There can be several reasons of a point of 0 shift:

- The electrolyte may have been polluted by liquid entering the sensor
- Polluted junction
- Probe used in an installation with leakage currents caused by a bad earth electrode (In this case, regeneration is pointless).

CALIBRATION

Each sensor is characterised by its deviation and slope. These two points of measurement must be defined using calibration solutions and sent to the connected instrument. As these characteristics tend to drift with use, calibration must be carried out regularly. Calibration is mandatory in the following cases:

- when installing or after replacing the sensor
- After every cleaning with a cleaning solution
- After long term storage
- When the measurement results are too far from the expected results.

CONTROLLING THE TAS AND THE TH

At the time of installation, you are advised to test or commission a specialist to test the TAS (Total Alkali Strength) and/or the TH (Total Hardness) of the pool water. The two measurements are generally close to each other and are more often than not expressed in French degrees (°F). If TAS and TH are different, use the average value of these two measurements.

It is important to stress that although very soft water (TAS/TH < 10°F) has the advantage that it prevents scaling, it is also very corrosive and its pH is very unstable.

Conversely, very hard water (> 35°F) has a pH that is difficult to correct and is highly irritable for skin and causes the rapid scaling of installations. In extreme cases, you are therefore recommended to correct the TAS and the TH by using appropriate chemical products.

NB: Any chemical products used in pools are corrosive and may have a harmful impact on health and environment. These products must be handled with care and stored in suitable locations.

PHILEO LT[®]

Date of sale :

Serial number :

CE Declaration

Bleu Electrique SAS (FR 47 403 521 693) declares that the **Phileo LT[®]** product fulfils the safety and electromagnetic compatibility requirements of European Directives 2006/95 / EC and 2004/108 / EEC.

Emmanuel Baret
Marseille, 06th of June 2018

Distributor's stamp



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