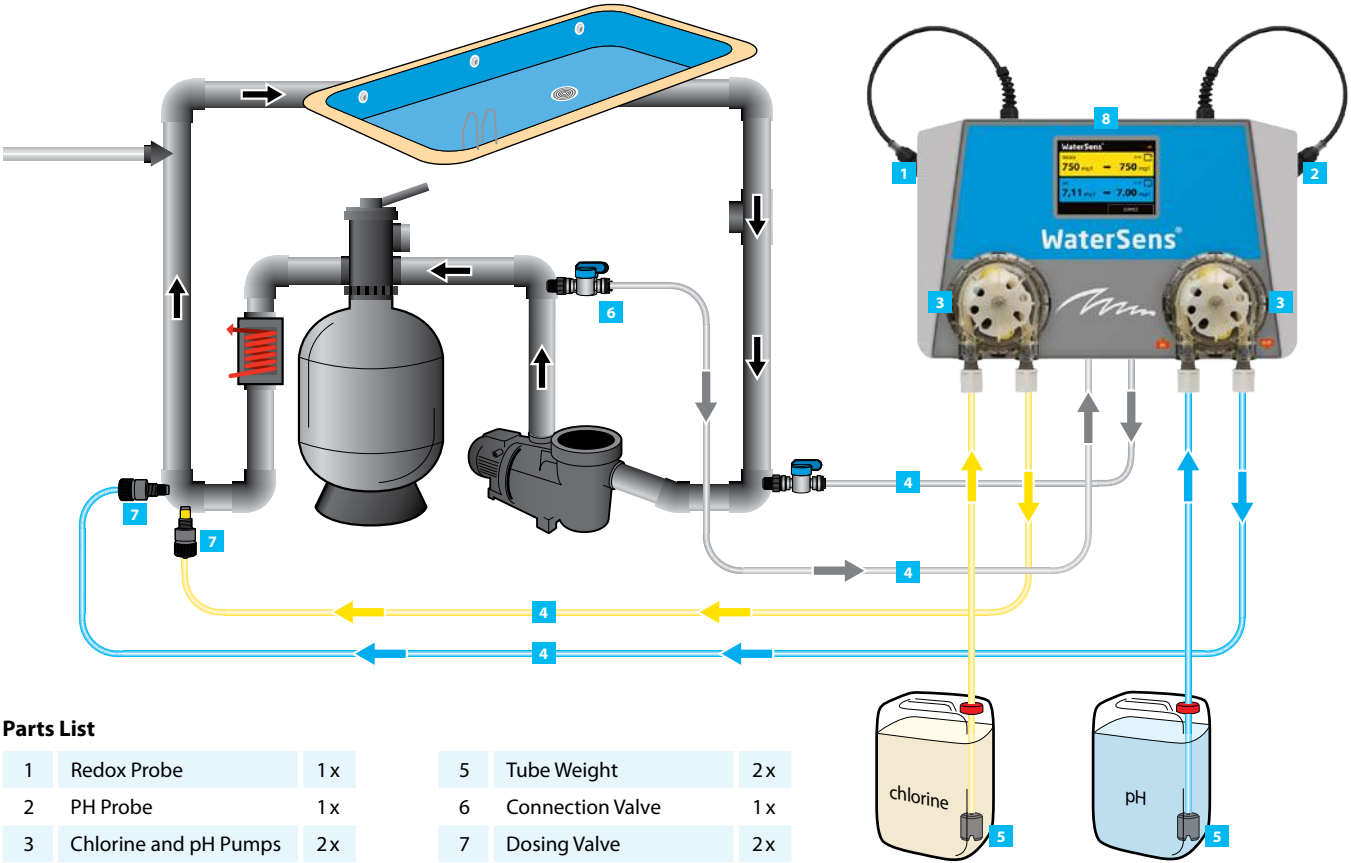
HeatPumps 4Pools

USER MANUAL FOR

Watersens pH -REDOX

Cl pH



Parts List

1	Redox Probe	1 x	5	Tube Weight	2 x
2	PH Probe	1 x	6	Connection Valve	1 x
3	Chlorine and pH Pumps	2 x	7	Dosing Valve	2 x

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About Watersens

PPG's Watersens gives your family pool clean and sparkling water with the minimum amount of chemicals. By directly measuring and regulating the potential voltage of your pool water with an advanced Redox probe, Watersens tunes your pool water using the minimum amount of chlorine, eliminating the smell and burning of over-treated pools. With a touch screen interface, you have complete control over measurement and regulation of your pool. Watersens operates with your existing pool filtering equipment, so you can have the optimum water solution customized for your pool.

Redox (reduxion-oxidation) technology measures the true cleanliness of your pool water 24 – 7. So, when your pool actually needs more chlorine, it adds just enough to keep the water clean. When your pool isn't in constant use, Redox automatically reduces the amount of chemicals to reflect your needs.

Parts List

1	Redox Probe	1 x
2	PH Probe	1 x
3	Chlorine and pH Pumps	2 x
4	Clear Plastic Tubes	1 x
5	Tube Weight	2 x
6	Connection Valve	1 x
7	Dosing Valve	2 x
8	Watersens	1 x

1) Redox probe

2) pH probe

3) chlorine and pH Pumps

4) Clear Plastic Tubes

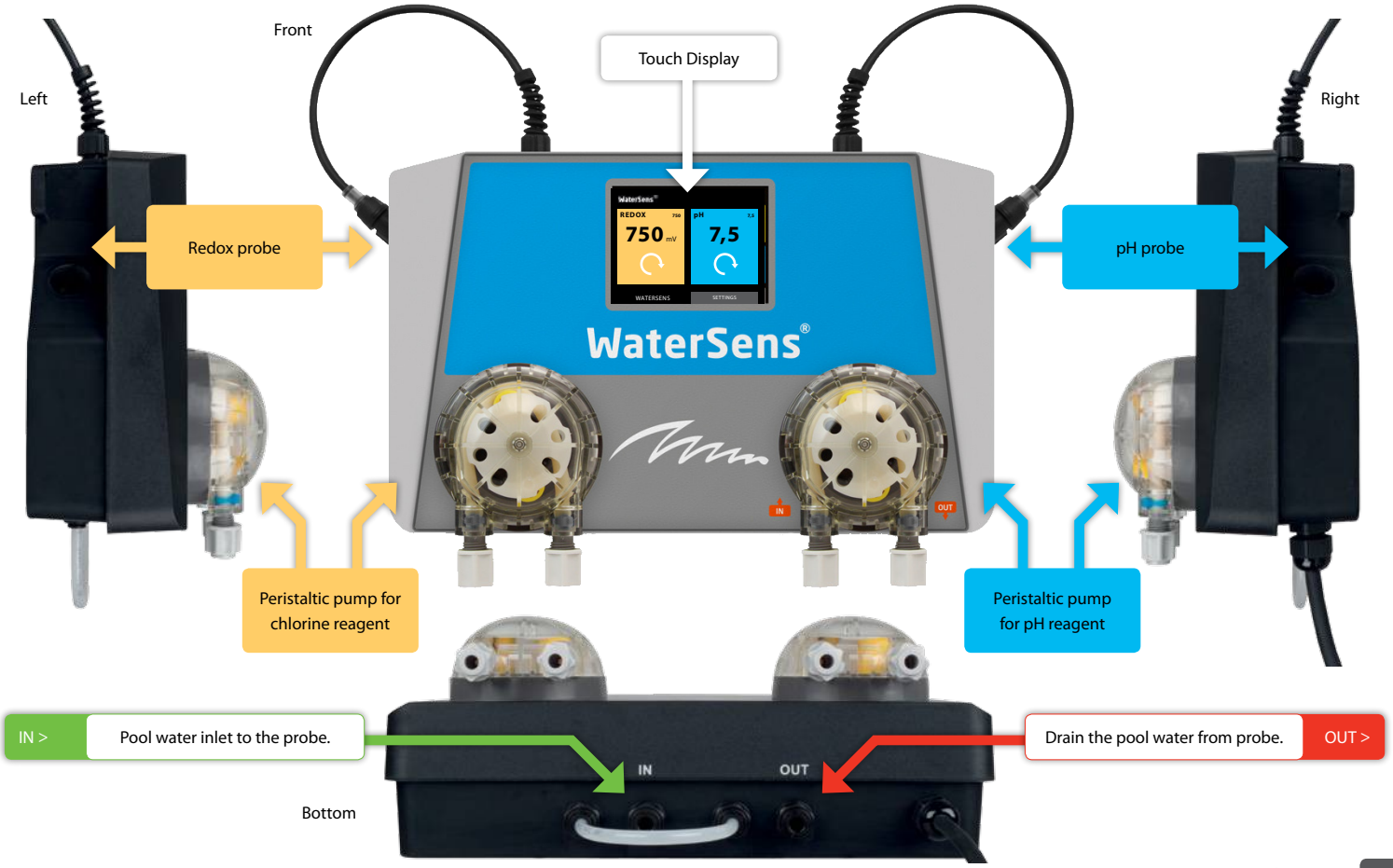
5) Tube Weight

6) Connection Valve

7) Dosing Valve

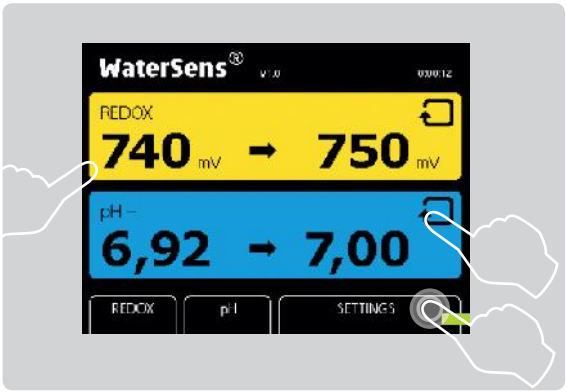
8) Watersens

Understanding Watersens

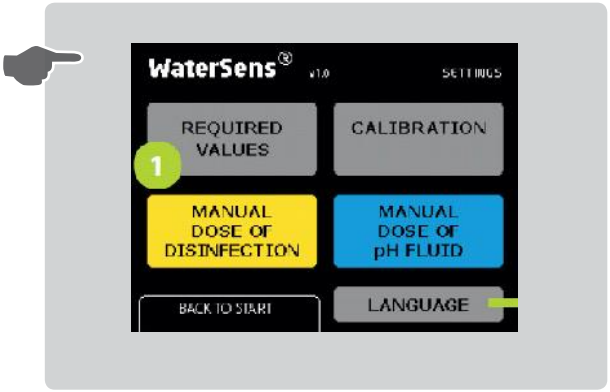


Understanding Watersens – continued

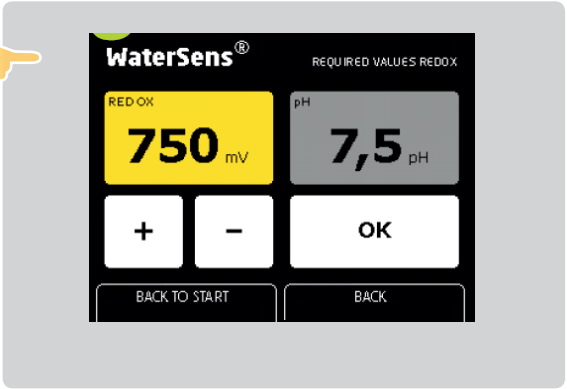
Main Display



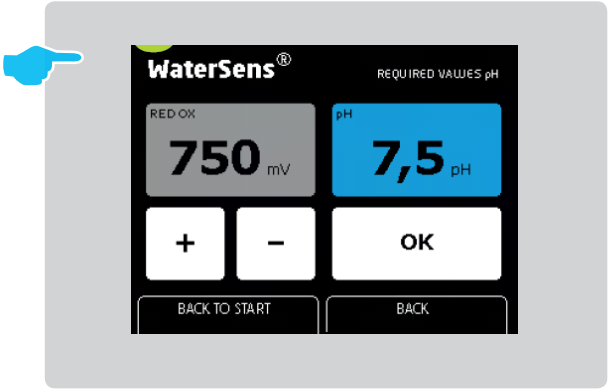
Settings



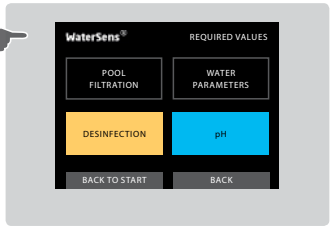
Required values Redox

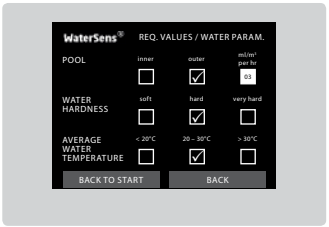


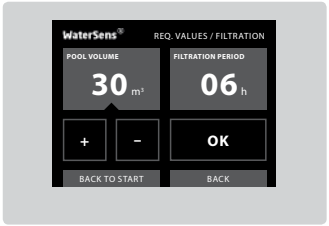
Required values pH

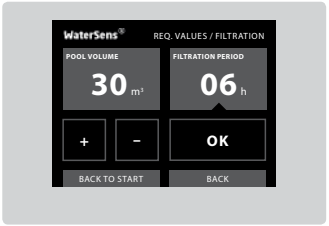


Required values

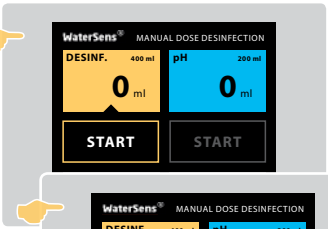


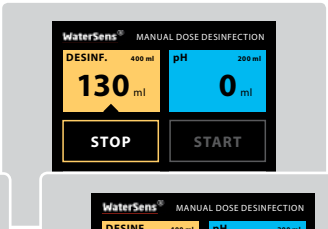


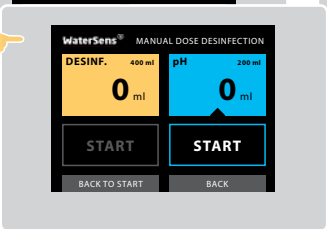


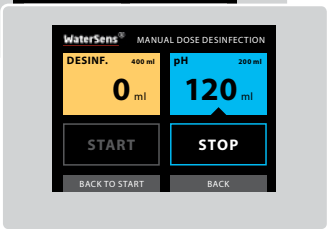


Manual dose









Health and Safety

Watersens allows you to comply with hygiene rules for the physical and chemical requirements for pool water quality.

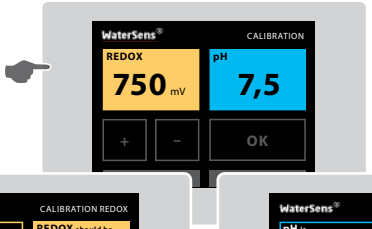
Install your Watersens indoor away from dust and damp and make sure all electrical connections are secure.

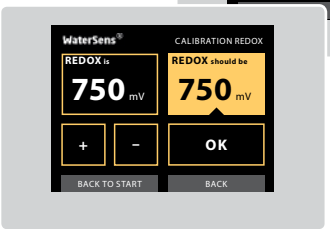
Do not open your Watersens or exchange any of the internal parts. This will damage the electrical integrity of Watersense.

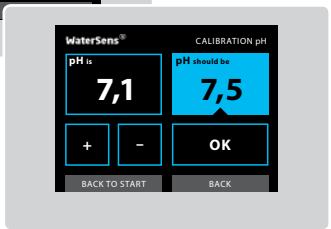
The chemicals used with the Watersens must be handled in a safe manner to prevent damage or personal harm. PPG recommends you always use personal protective safety equipment when handling the pH and chlorine agents.

WARNING: Never mix the pH agent with the chlorine agent. When carrying out maintenance on the clear plastic tubes or valves always rinse with clean water to prevent mixing of the pH and chlorine agents.

Calibration

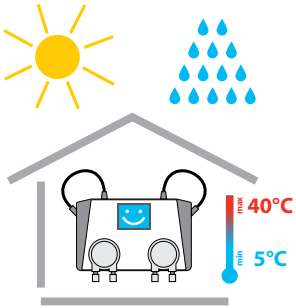


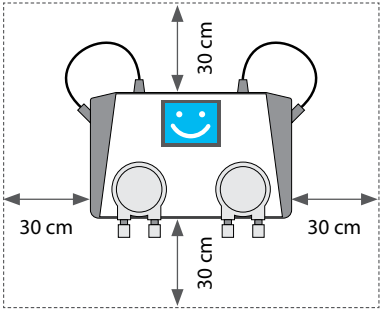




Installing Watersens

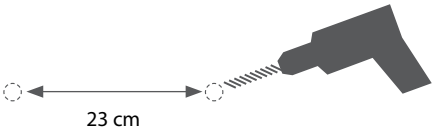
Install your Watersens in an environment free from dust and damp. Mount your Watersense on the wall with at least 30 cm of free space around all sides.





Measure, mark and drill two holes 23 centimeters apart on your wall.

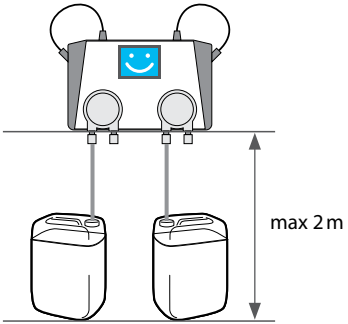
Use the screws included with Watersense.



WARNING: Dust accumulates around the probes which causes inaccurate readings. Do not expose your Watersens to direct sunlight, damp or frost as these weather conditions cause damage. Watersens functional temperature range is 5 – 40°C.

WARNING:

- Ensure pool water is chemically clean and free from dirt before installing your Watersens.
- Do not install your Watersens more than 8 m away from the connection of the chemical agents to your pool water supply.
- Do not install your Watersens with more than a 2 m vertical difference between the fixed wall mounted position to the connection of the chemical agents.



Step 1

Connecting the Probes

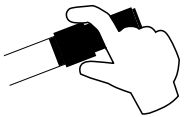
The Redox probe is on the left. The pH probe is on the right. These probes are used for the analysis of the content of the water in your pool. The probes allow for the accurate detection of acidity levels and the potential voltage within your pool water.

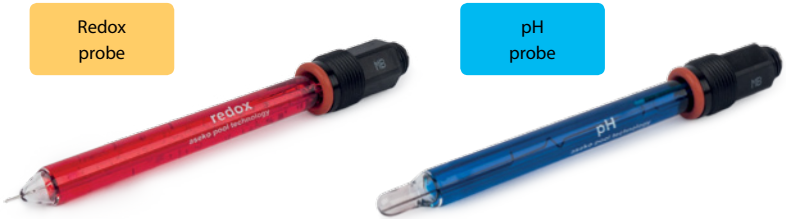
1. Insert your Redox probe in the left side of your ASIN Aqua Redox and attach the cable using the screw fit connector.
2. Insert your pH probe in the right side of your ASIN Aqua Redox and attach the cable using the screw fit connector.

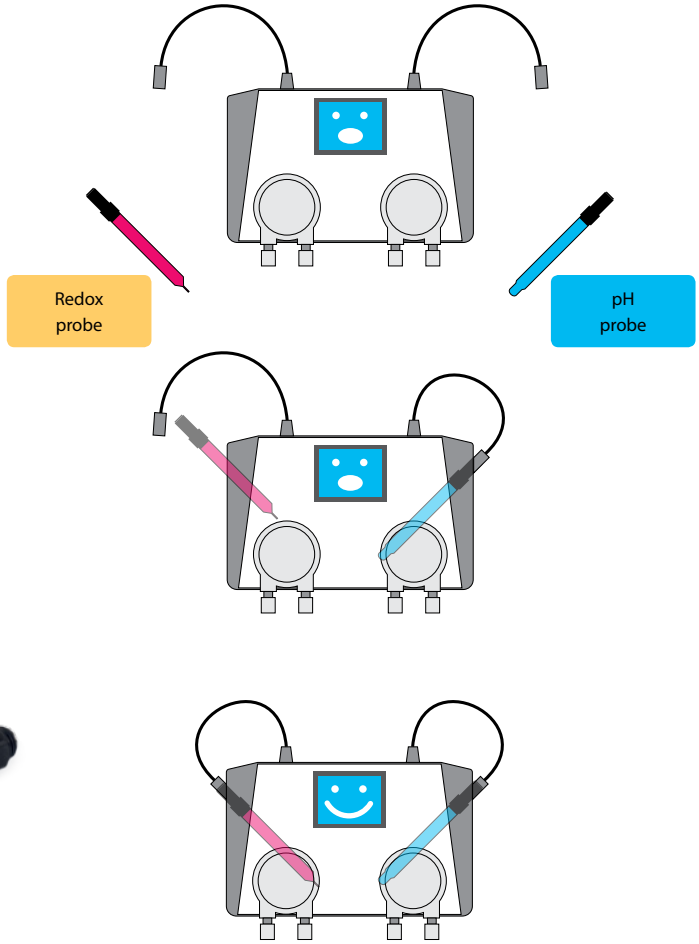
After inserting the probes your ASIN Aqua Redox is ready to be connected to the water system of your pool.

WARNING:

Only hand tighten the connections.
Do not use pliers or wrench.







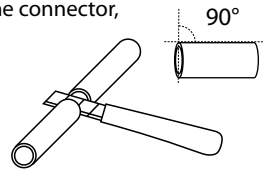
Step 2

Connecting the Watersens

Watersens requires connection to the water from your pool. Connect the supply to your ASIN Aqua Redox after the pump and before the filter.

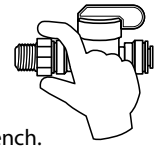
- Thread = G 1/4".

For the water connection to your Watersens, PPG provides a unique Speedfit connector. To connect, push the clear plastic tube into the Speedfit connector. To remove the tube from the connector, push the collet in, and pull on the tube.



WARNING: Using pliers or cutters damages your hose and results in a poor fitting.

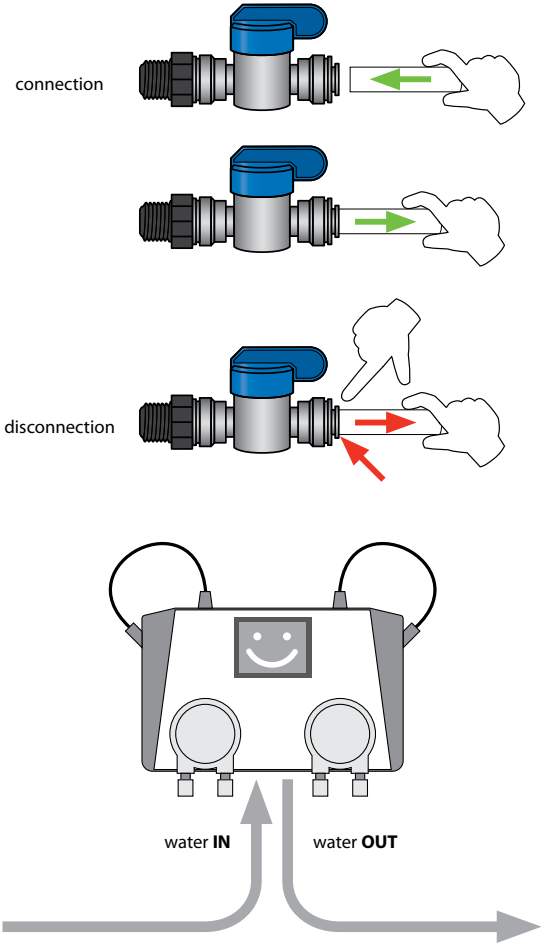
1. Using a sharp knife cut your clear plastic tube perpendicular and NOT at an angle to ensure a proper fitting.
2. Connect the water input on the left and the water output on the right. Make sure the water pressure is not more than 1.5 bar.
3. The water output from your Watersens can be connected, on the tubing before the pump or to the skimmer, the buffer tank or to a drain.



WARNING:

Only hand tighten the connections. Do not use pliers or wrench.

After connecting the water supply, your Watersens is then set up to take samples of the water from your pool and analyze them. The analysis allows the monitoring of chlorine levels and pH levels ensuring your pool hygiene.

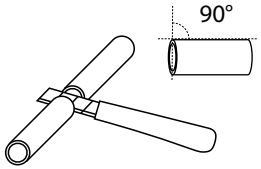


Step 3

Connecting the Chlorine and pH Dosage Tubes

Connect the pH dosing valve to the pool water supply UPSTREAM from the chlorine valve. This reduces limescale build up.

1. Cut your clear plastic tube at 90 degree angle to ensure proper fitting.
   - Use a sharp knife or razor to cut the tubes cleanly.



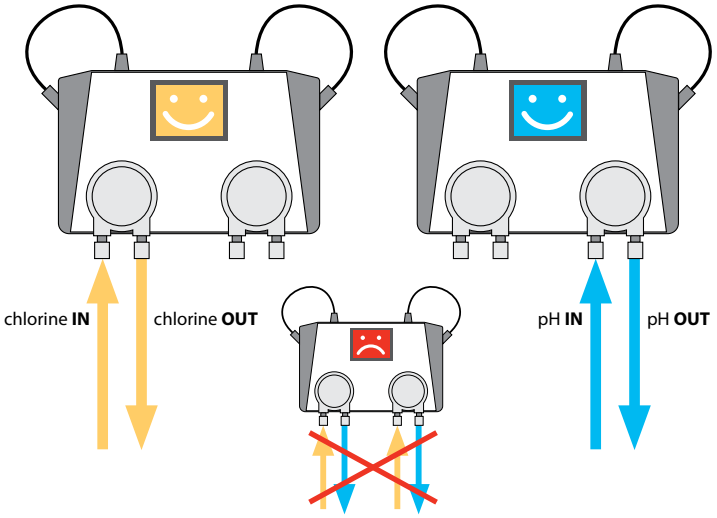
2. Make a suitable size hole in the lid of your chlorine container and push through enough clear plastic tube to reach the bottom of the container.
   - Extra tube in your container will bend and allow air bubbles into the system.
3. Attach the tube weigh to the end of your clear plastic tube.
4. Connect your clear plastic tube from the chlorine to the left side of the chlorine pump of your Watersens.
5. Connect your clear plastic tube from the right side of your chlorine pump to your pH dosing valve.
   - Thread = G 1/4".
6. Ensure your valves are not blocked or damaged and connect to the water supply of the pool
7. Repeat the steps for your pH dosage connection using the pump on the right side.

WARNING:

Only hand tighten the connections.
Do not use pliers or wrench.

Once connected your Watersens enables the transfer of chemical agents to your pool. Watersens uses a regulated amount of the chemical agents for disinfection and pH regulation ensuring optimal efficiency and consumption.

WARNING: Do NOT connect the pH to the chlorine pump, or the chlorine to the pH pump. In case of a crossed connection, after ten doses your Watersens displays an ERROR warning. Press the red ERROR button to list the faults. Correct the tube installation and then resume operation of your Watersens.



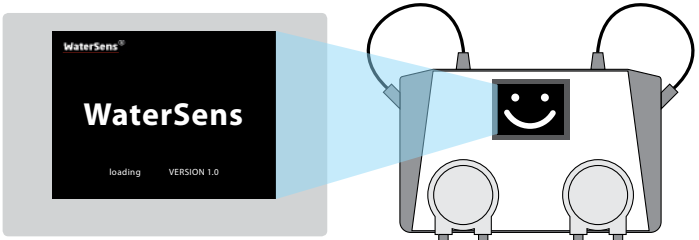
Step 4

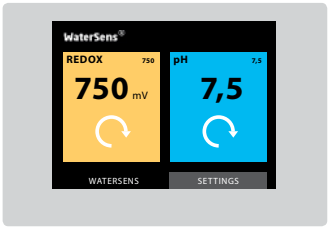
Connecting the Power Supply

Connect your Watersens to a 230 Volt , 50 Hz supply. If your electricity is unreliable provide an Uninterruptible Power Supply (UPS).

- Connect your power supply.

When you connect the power supply the Watersens touch display screen lights and you can test your installation.





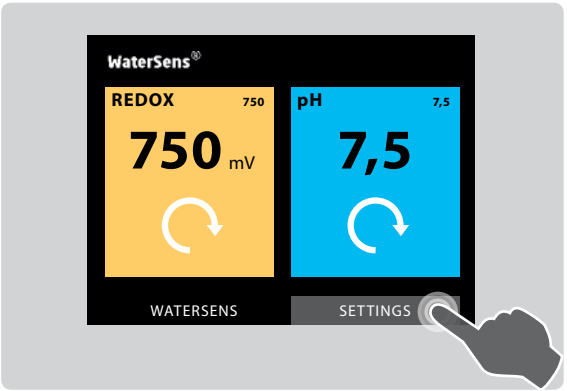
Testing Watersens Installation

WARNING: Any blocks, bubbles, or leaks in the clear plastic tube prevent ASIN Aqua Redox from operating. The clear plastic tubing allows you to see liquid flow to and from your Watersens.

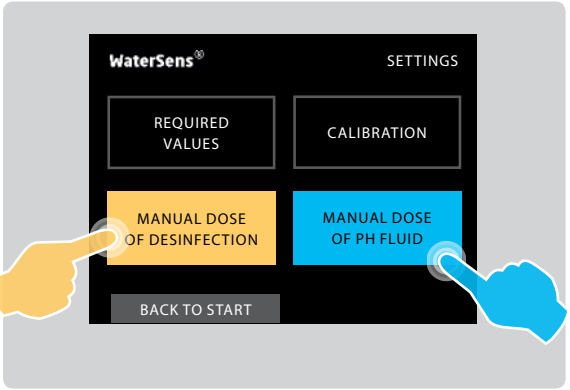
Test your Watersens installation before operating to prevent damage to the system, failure to monitor your pool, and wasting time and money. Most problems are the result of poor connections to the pH and chlorine pumps.

Using the MANUAL DOSE OF DISINFECTANT function allows you to test both pumps.

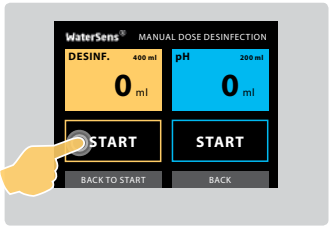
1. From the start screen select SETTINGS.

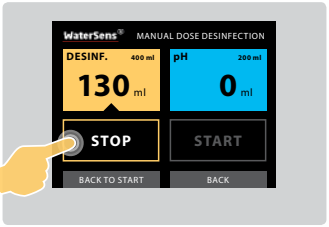


2. Select MANUAL DOSE OF DISINFECTION in the yellow box on the left of the screen.



3. Select START in the yellow box on the left of the screen. This starts the chlorine pump on the left of your Watersens.



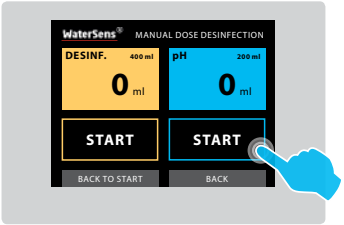


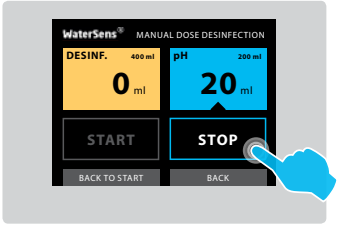
4. While the pump is running check all the connections of your clear plastic tubes to the chlorine pump Check the valves are not blocked or leaking and that there are no air bubbles.

WARNING: Make sure fluid moves through the clear plastic tubes through the pumps to the pool water.

5. Select STOP.

6. Select START in the blue box on the right of the screen. This starts the pH pump on the right of your Watersens.





7. While the pump is running check all the connections of your clear plastic tubes to the pH pump. Check the valves are not blocked or leaking and that there are no air bubbles.

WARNING: Make sure fluid moves through the clear plastic tubes through the pumps to the pool water.

8. Select STOP.

Checking the installation and checking the pumps ensures your Watersens is integrated into your pool system. Once everything is set up with no problems, calibrate and set parameters for your Watersens.

Setting Your Pool's Required Values

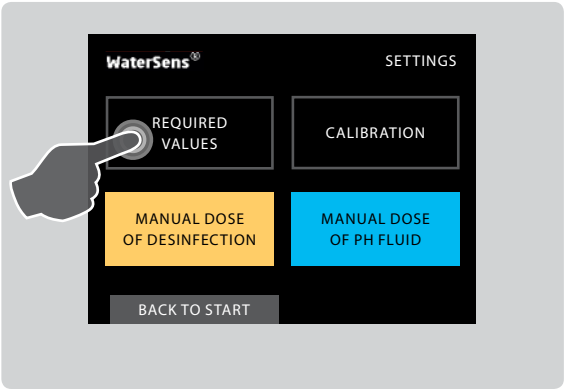
Each pool is unique. Temperature, size, location, and hardness of water all affect how Watersens monitors and tunes your pool water. For optimum performance, you must set your pool properties in Watersens. After you select REQUIRED VALUES:

1. Set your Pool Filtration Parameters
2. Set your Water Parameters

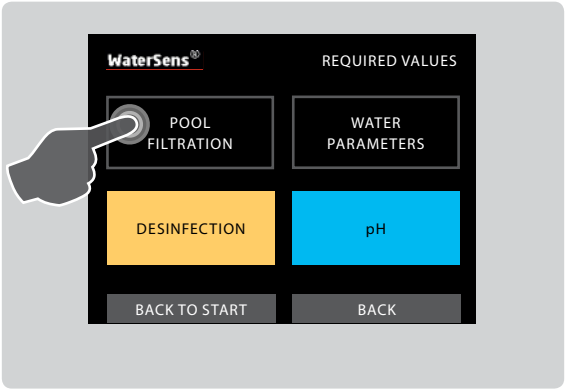
Setting Pool Filtration Parameters

Watersens must know the size of your pool and how long your pool is filtered each day. When you first install Watersens you must set these pool parameters.

1. From the start screen select SETTINGS then select REQUIRED VALUES to take you to the following screen.

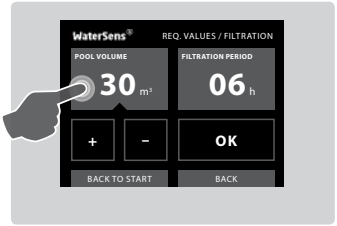


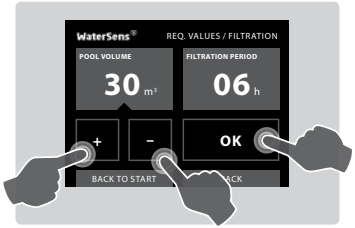
2. Select POOL FILTRATION

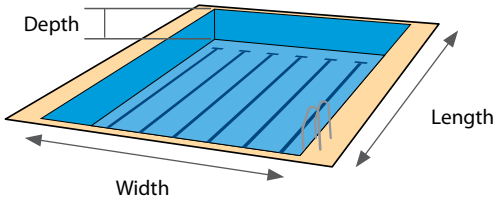


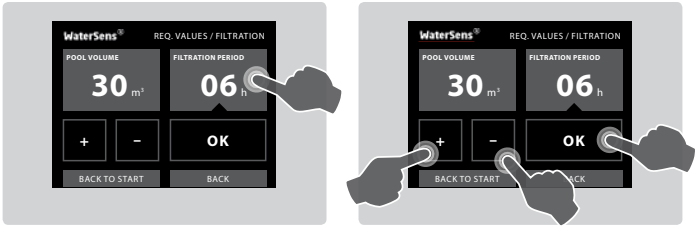
3. Select POOL VOLUME. Your selection is highlighted with a black triangle at the bottom. Calculate the volume of your pool in cubic meters (m^3) using the formula;

   - Pool Length (L) multiplied by Pool Width (W) multiplied by Pool Depth (D) equals Pool Volume (V) – ($L \times W \times D = V$). Press the + and – buttons to input the correct volume of your pool and then press OK to save.









4. Select the required filtration period, press OK to save. Your selection is highlighted with a black triangle at the bottom. The figure shown shows the duration of the filtration period and **not** the frequency.

   Recommended filtration period is 24 hours.
   Minimum filtration period is 6 hours

After you set the Watersens Pool Filtration parameters you must set the Water Parameters. The Pool Filtration and Water parameters determine which settings Watersens uses to monitor your pool correctly.

If you change the volume of water or duration of your pool filtration, you must update your parameters.

Setting Water Parameters

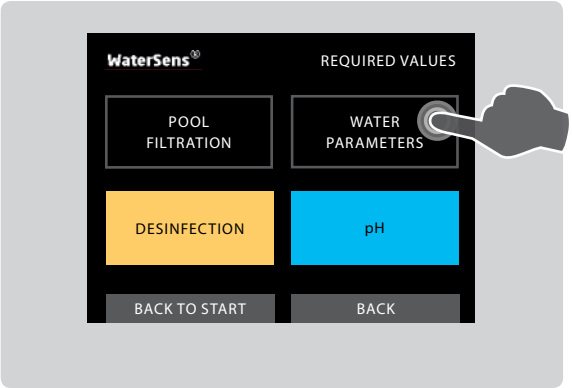
Water parameters tell Watersens the properties of your pool's water. Watersens includes pre-set defaults based on:

- Indoor or Outdoor pool.
- Level of water hardness.
- Average temperature of water.

Because each of these parameters has an effect on how Watersens performs, you must enter the correct water parameters to ensure Watersens operates optimally with your pool.

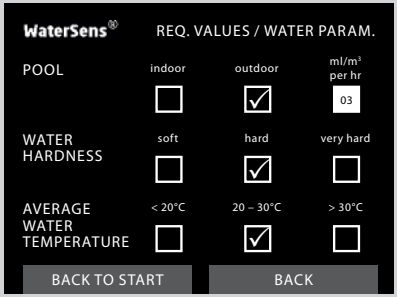
Set your water parameters when you install Watersens.

1. From the home screen select settings then REQUIRED VALUES and then WATER PARAMETERS to reach the following screen.



2. POOL. Using the check boxes select your type of pool:
   - INDOOR
   - OUTDOOR
   - This automatically changes the chlorine level in the third box displayed using the units, ml/m³ per hour (milliliters per cubic meter per hour).
3. WATER HARDNESS. Input the level of hardness of the water in the pool. This is measured in dH (degrees of hardness), 0-7 is soft, 7-14 is hard and 14+ is very hard.
4. AVERAGE WATER TEMPERATURE. Select the average temperature of the water in the pool

Ensure the parameters you set match your pool before calibrating your Watersens



Setting the Sanitation Level of Your Watersebs

Setting the Redox level allows you to match the potential voltage with your preferred level of chlorine. Once this is set your pool becomes self regulating. The following steps are required to set your pool's Redox level.

Step 1

Preparation

1. Install the Watersens equipment and wait 24 hours for the Redox probe to stabilize
2. Use the test kit, included with your Watersens, to manually check the chlorine level of your pool by taking a sample from the stream of water entering your buffer tank.

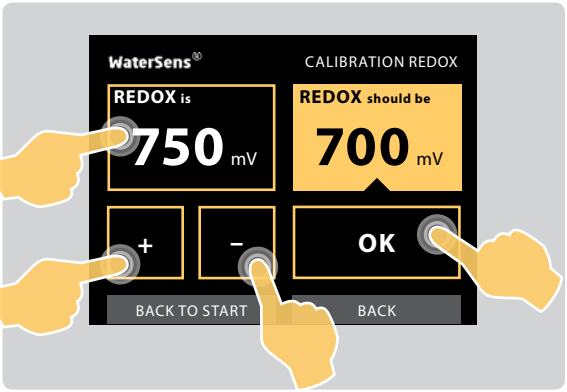
NOTE: PPG recommends you do not take the sample directly from the pool.

3. Manually adjust the chlorine level in your pool until it is 0.5mg/l. When your pool chlorine level is 0.5mg/l, begin the set up of the Redox probe:

Step 2

Settings

1. From the home screen of your Watersens select SETTINGS then CALIBRATION and then DISINFECTION.



2. Select the yellow Redox button on the left.
3. Using the + and – buttons adjust the potential voltage reading to 700mV (millivolts)
   - Use your pool normally for 24 hours

Step 3

Testing and Calibration

1. After 24 hours of normal usage, manually check the chlorine level of the pool water again. The level of chlorine must match the measured potential voltage.
2. If your pool's chlorine level falls, adjust the mV setting to fine tune your system. Each 0.1mg/l decrease in chlorine requires a 10mV decrease.

EXAMPLE: If your pool's chlorine level drops from 0.5mg/l to 0.3mg/l, adjust the potential voltage from 700mV to 680mV. This maintains the potential voltage to chlorine level Watersens uses to keep your pool clean.

Once your pool is calibrated you should re-check the calibration every month by repeating Step 3.

NOTE: With a pH 7 level and 0.5mg/l of chlorine, the range for the potential voltage can vary between 600 – 800 mV

Your pool is now self regulating and adjusts the chlorine level as required to maintain your potential voltage setting. Your pool will remain clear and clean so long as the Watersens system is calibrated and operational.

Calibrating pH

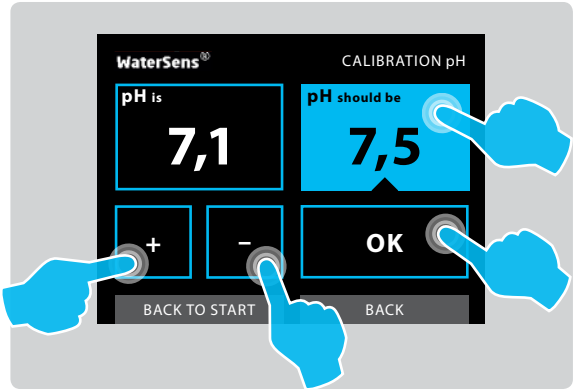
WARNING: pH probe must stabilize in water for 24 hours before calibration. When you insert the probes into Watersens, immediately connect the water supply and then let Watersens sit for a full day and night before calibrating. If you do not allow the probes to stabilize in water before calibrating and using your system, PPG cannot ensure the accuracy of Watersens.

PPG calibrates the Watersens pH probes at the factory. The probes do NOT require adjustment under most circumstances. Calibration ensures that the probe is operating and reading pH accurately.
Re-check pH calibration once a year, replacing the probe if needed.

Calibrating the Watersens pH Probe:

1. Manually check the pH level of your pool by taking a sample from the stream of water into the buffer tank. Do not take the sample directly from the pool.

2. From the start screen of your Watersens select SETTINGS and then CALIBRATION.



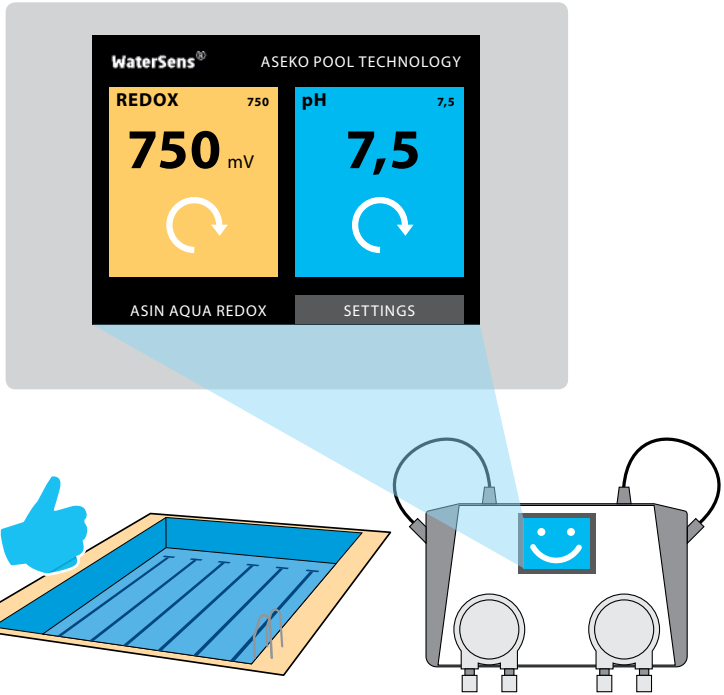
3. Select the blue pH button on the right of the screen. If the probe is broken or incorrectly installed the following notification is given, "Voltage on the probe is less than 10mV".

4. Compare the reading given on your Watersens with the reading taken manually. If different adjust the reading on the Watersens by pressing the + and – buttons so that they match and press OK to save.

When you install Watersens, the pH calibration is already accurate. If not, your adjustments ensure accurate readings.
Re-check pH calibration after one week to ensure your readings are stable. If the readings are not stable, replace the pH probe.

Normal system operation description

Watersens automatically regulates pH and the free chlorine concentration in your pool. The readings are taken using two probes, pH and Redox, and the results are displayed on your Watersens screen. Clear and clean water in your pool shows you that your Watersens is operating normally.



Manual Dosing

Use Manual Dosing to raise the concentration of chlorine or pH agent within your pool. This is required if the concentration is significantly below recommended levels.

You can also use Manual dosing to test the connections of the clear plastic tubes to the pH and chlorine pumps.

1. Activate Manual Dosing
2. Check if the pH or chlorine agent is being pumped properly, with no air bubbles forming in the tubes below the pump and no leaks.

Maintaining Watersens

The Watersens requires regular visual inspection and maintenance to ensure optimal performance. The table below gives a list of areas to be regularly checked and recommendations for replacement time.

Item	Maintenance Procedure	Recommendation
pH and Chlorine Dosing Valves	Check your valves regularly for blockages, damaged rubber seals and the build up of limescale. Check for damage to the clear plastic tubes. In case of very hard water, swop the clear plastic tube connecting the pH and chlorine to the valves every 2 weeks. This prevents the build up of limescale. WARNING: Mixing the pH and chlorine agents is extremely dangerous. Always wear personal protective safety equipment, gloves glasses and mask. After disconnecting tubes rinse in clean water before reconnecting.	Change your valves every 2 years for private pool use or every 1 year for public pools.

Dosing Valves

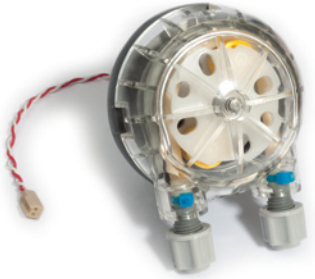
Item	Maintenance Procedure	Recommendation
Redox Probe	Remove your Redox probe from your Watersens and clean off any dust and debris. Clean your probe with fresh water and wipe with a clean soft material. Remove your pH probe from your Watersens and clean off any dust and debris Clean your probe with fresh water and wipe with a clean soft material.	Change your Redox probe every 1 – 2 years.
pH Probe	Remove your pH probe from your Watersens and clean off any dust and debris Clean your probe with fresh water and wipe with a clean soft material.	Change the pH probes every 1 – 2 years.

Item	Maintenance Procedure	Recommendation
Chlorine and pH Agent	Regularly check the level.	Chlorine agent decomposes with time replace every 6 months
PH and Chlorine Pumps	Check inside the pumps for damage. The clear plastic tubes wear out during operation.	Replace tubes every 12 months.

Redox probe

pH probe

Chlorine and pH Pumps



Troubleshooting Watersens

The agent has run out.

- Check the chlorine and pH agents regularly so that they do not run out. Chlorine agent concentration is 15-20%. This degrades over time and if exposed to direct sunlight.

The dosing pump does not work.

- Check that your dosing pumps are securely fitted and not loose.
- Check the connections to your dosing pumps are secure and not leaking.
- Check the clear plastic tubes inside the dosing pumps are not damaged or broken.
- To remove your dosing pumps from your Watersens, disconnect the clear plastic tubes, turn your dosing pump anti clockwise and pull away from your Watersens.

The dosing valve is not working.

- Check your dosing valves regularly for the build up of limescale.
- Make sure dust and dirt does not get into the containers of the chlorine and pH agent to avoid blockages and damage to the valves.
- Check the rubber seals of your valves regularly to prevent leaking.

Water does not flow to the probes.

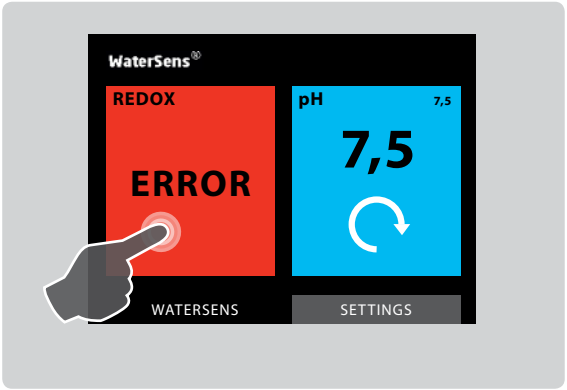
- Check the clear plastic tubes connection to your Watersens for damage and leaks.
- Check the connection of the clear plastic tubes to the valves for damage and leaks.
- Check the valves are properly connected to the water supply and that they are not damaged, blocked or in the closed position.

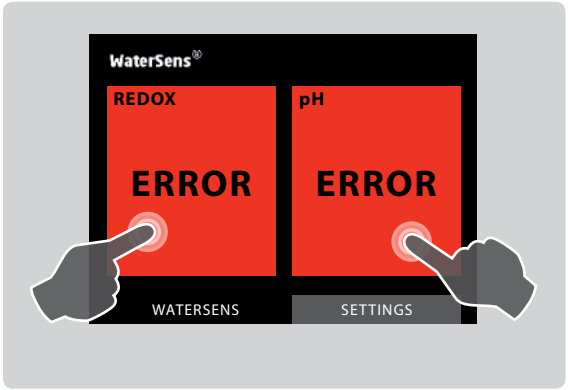
The probe does not work.

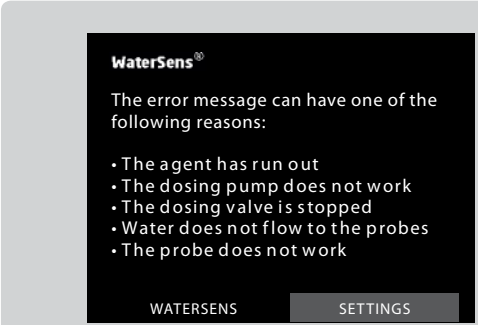
- Replace the pH probe each year.
- Ensure your probes are clean and free from dust and dirt.
- Exposure to below 0° C conditions damages the probes.
- Regular cleaning of the probes maintains system accuracy.

pH and Chlorine display ERROR messages

- Press the red ERROR box to see the faults.
- Ensure the chlorine pump is connected to the chlorine agent and pH pump to pH agent.


WaterSens®
REDOX
ERROR
pH
7,5
7,5
WATERSENS
SETTINGS


WaterSens®
REDOX
ERROR
pH
ERROR
WATERSENS
SETTINGS


WaterSens®
The error message can have one of the following reasons:
• The agent has run out
• The dosing pump does not work
• The dosing valve is stopped
• Water does not flow to the probes
• The probe does not work
WATERSENS
SETTINGS

HeatPumps
4Pools