

Two is better than one

Random sample measurements leave nothing to chance



Oxygen measurements in an aeration basin

Benefits at a glance:

- Quick and versatile measuring on-site in order to respond to deviations early on
- Verification of on-line measured values
- Digital documentation via the Memobase Pro App
- Cost savings thanks to optimal aeration in the aeration basin

External circumstances, such as heavy rain, chemical pollutants and non-permitted waste in the inflow, can heavily impede the wastewater treatment process at a wastewater treatment plant. It is necessary to respond to these fluctuations and the process must be adapted accordingly in order to ensure sufficient quality of the purified wastewater and suitable energy consumption.

The challenge

A cleaning step in the process is to degrade dissolved organic substances in the wastewater by using bacteria. To ensure optimal growth of the bacteria in the aeration basin, air is continuously blown into the basin. This step requires the oxygen content in the aerated part of the aeration basin to be regularly monitored. If too little air is blown into the basin, the bacteria used to degrade ammonia may not grow optimally. This will affect the quality of the cleaning.

Blowing in too much air will result in the oxygen content in the aeration basin being too high and high energy consumption, which may lead to high costs.

The process

In order to monitor the wastewater quality, fixed installed measuring points (on-line) for pH and conductivity are installed in the inflow of the wastewater treatment plant. These take measurements continuously. By measuring the pH and conductivity, the extent of contamination can be determined at an early stage. Oxygen measurement is used to control optimal and efficient bacteria growth in the aeration basin. Over-ventilating the basin should be avoided so that the process is as energy-efficient as possible, and therefore ensures that work is cost-effective. The wastewater treatment plant operator relies on the installed on-line measurements and should perform regular maintenance

on the sensors. In order to verify the plausibility of the on-line measured values, it is recommended to carry out additional measurements with the Liquiline CML18. These random sample measurements enable the wastewater treatment plant operator to respond to possible deviations at an early stage and to maintain the sensors accordingly.

Our solution

Various sensors can be connected to the Liquiline Mobile CML18 handheld measuring instrument using the CYK10 cable. This enables you to measure pH (Memosens CPL51E), conductivity (Memosens CLL47E) and oxygen (Memosens COL37E), for example, with just a single device. The connected sensors allow you to take measurements directly in the process. The watertight Memosens plug-in head connection ensures that measured values are securely transmitted to the handheld measuring instrument. They can then be synchronized with the Memobase Pro App and documented. In order to obtain stable oxygen values, the measurement must be taken directly in the process while it is being ventilated. This ensures that the oxygen in the sample is not consumed by bacteria.

Results

In spite of variable weather conditions, the on-line conductivity measurements in the outflow remain at the same value over several days. The Liquiline Mobile CML18 determines higher values than the fixed installed sensor. Moreover, two of the four oxygen sensors for on-line oxygen measurement in the aeration basin indicate significantly higher values than the Liquiline Mobile CML18 handheld measuring instrument. By additionally checking the measured values with the handheld measuring instrument, deviations can be detected early on and costs can be saved. In the future, random sample measurements will be regularly taken with the Liquiline CML18. The measured values are digitally documented using the Memobase Pro App and can be retrieved anywhere and at any time. This saves time and reduces possible errors when manually transmitting the measured values.

Components

- CML18-AAACA1 and CLL47E-8APL30
- CML18-AAACA1 and COL37E-8A24ACLB1
- CML18-AAACA1 and CPL51E-8A7AHH2
- Bumper for 12-mm-sensors, 71638868



Liquiline Mobile CLM18, Memosens sensors (CLL47E, COL37, CPL51E), bumper and tablet with Memobase Pro App



Memobase Pro iOS



Memobase Pro Android