Endress+Hauser
People for Process Automation

Memosens and Liquiline offer cutting-edge technology for an endless number of applications in all industries

These are just a few examples.

Wastewater

Aeration basins In sewage treatment plants the focus is on the protection of downstream waters. The biological stage in which the decomposition of harmful substances and nutrients occurs is of particular importance in this process. This biological stage is extremely energy-intensive and uses up to 70 per cent of the total energy requirements of a plant. This is due to the oxygen blowers used in sludge activation. In order to control the blower on the basis of its load and therefore conserve energy, reliable measurement of the oxygen content and the ammonium load is required. This is where the undisrupted digital data transmission feature of the Memosens technology and the capacity to connect all the required sensors to just one multi-channel transmitter prove their worth.

Inlet One of the most important measuring points in a sewage treatment plant is located directly at the inlet. This is because countermeasures can only be taken against harmful substances if they are detected early here. By using the Liquistation CSF48 sampler together with Memosens sensors, it is possible to carry out event-driven sampling subject to the pH value and conductivity. This enables sewage treatment plant operators to react quickly to the changing properties of the inlet water and, for example, divert some of the water to a holding tank so that it can be added in batches to less contaminated inlet water.

Water

Desalination of seawater to obtain drinking water is of increasing importance. This industry has enormous potential for growth. So far, the most efficient method of desalinating seawater is reverse osmosis. Regular measurements of the salt content, which can easily be determined from the conductivity parameter, are required for monitoring the individual stages in the desalination plant and checking efficiency. Memosens sensors specially designed for measurements in the pure and ultrapure water sector are used for this purpose. They provide the excellent measurement accuracy required and at the same time ensure process safety and plant availability.

Chemicals

The pH value is an important quality characteristic for chemicals such as sodium hydrogen sulfite, which is used as a preservative or antioxidant. As such, it must be closely monitored. With the old analog technology, the sensors need to be calibrated as part of the process approximately every three days, which is considerably expensive, and they reach the end of their service life after about five weeks. The service life of the sensors is also highly limited for sulfuric acid production. Thanks to Memosens, the sensors can now be calibrated in the laboratory instead of during the process. Furthermore, by regenerating the sensors in the laboratory with potassium chloride, the sensor service life can be extended to almost two years – a 20-fold increase.

Food & beverage

Brewing An in-line measurement of the pH value of the mash is a challenge for many firms. Damp ambient conditions cause interference, and on-site calibration and maintenance of process measuring points are awkward to perform. In addition, operators generally do not wish to expose a pH electrode to this solid-containing medium for a prolonged period, because sugar and proteins greatly reduce the service life of the electrode. Thanks to Memosens technology, the damp ambient conditions cannot adversely affect signal transmission. Furthermore, it is possible to calibrate and condition the pH electrodes in the laboratory, thus extending their service life. Optimally, the sensor is fitted with a retractable assembly and cleaned periodically, which further reduces the cost of maintenance.

Beverages CIP systems are used as standard in beverage production for cleaning pipes. It is important to measure conductivity at several places in these systems. Firstly, measurements are taken in the cleaning agent tanks to check the concentration. Secondly, the conductivity in the CIP return line is of relevance for precise monitoring and control of the phase transition of water, cleaning solution and product. Memosens and the Liquiline multi-channel transmitter make installation and commissioning easy, because multiple conductivity sensors for all the monitoring points can be connected to just one device.

Life sciences

Compliance with the stringent GxP regulations is necessary every day in the field of life sciences. Memosens combined with the Memobase Plus tool supports safe and error-free operation. Because the sensors are calibrated in a laboratory, calibration is always performed under optimal conditions – a critical factor for the accuracy of the calibration and thus for the quality of the measurements. Memobase Plus fully automates the creation of datasets containing operating conditions, measurements and calibrations, and documents all of the associated information. This means that complete traceability is provided automatically, and preparing for audits is quick and easy. Needless to say, Memobase Plus makes operations in compliance with FDA CFR 21 Part 11 possible thanks to the audit trail and three-level user administration with electronic signature. This leaves no room for speculation.

Biotech These days, many pharmaceutical substances are produced using biological processes, i.e. synthesis is performed using special living microorganisms in bioreactors or fermenters. The efficiency of the biological process depends greatly on ensuring that the correct growth conditions for microorganisms or cell cultures are created. The pH value and the available oxygen are critical factors. These parameters are closely monitored by hygienic Memosens sensors developed specifically for fermenters in order to achieve optimal product yield.

Power & energy

In power stations, the analysis of feed water, boiler water, condensation, saturated steam and superheated steam is of great importance for maximizing the availability and service life of the power station and reliably detecting contaminants which could damage the facility. Since power stations are often operated round the clock with only a few employees, measuring points need to be extremely reliable, easy to operate and low-maintenance. Memosens technology transmits the sensor signal digitally and without interference to the transmitter, and enables simple replacement of sensors in a matter of seconds. As such, it is the appropriate solution in this context as well, particularly if all of the devices are attached to a turnkey analysis panel, enabling the entire water/steam cycle to be monitored from a central point.

Primaries & metals, oil & gas

The environmental conditions in these industries are often harsh, which necessitates robust devices. This is where the hard-wearing inductive connection and reliable digital data transmission prove their worth. Of particular importance, however, is the improvements to the safety of the facility personnel. With Memosens and Liquiline, personnel only need to enter the facility for a few minutes to replace a sensor, and this can be done while wearing full protective clothing. There is no need for awkward calibration wearing gloves, as this is performed subsequently in the laboratory.