# Safeguarding health with clean water

## Disinfection and monitoring of drinking water

NSI-Technik

NSI-Technik is a medium-sized company founded in 2015, which operates in the field of drinking water hygiene and drinking water treatment. The experts from Acholshausen have a wealth of experience and knowledge on the subject of drinking water hygiene in clinics and dental areas as well as medical offices.

*"Since the water quality in the Würzburg area is harder to handle due to the chemical composition, we were looking for a product that delivers a great measurement result in the long term, even with a difficult water. Endress+Hauser additionally offers the possibility to realize a function control for the used disinfection system within the automated measurement of the disinfectant capacity."*

Michael Nöth
Manager NSI-Technik
Germany

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Manager NSI-Technik.

Clean drinking water and limit value compliance: safeguarding human health

**The disinfection of drinking water is necessary to protect everyone's health and safety. It is a process that is subject to many guidelines and limit values. To ensure that the limit values are complied with at all times, NSI-Technik supports the pathology department of Würzburg University Hospital with a disinfection panel from Endress+Hauser.**

### The Challenge

Microbial contamination of drinking water presents a serious health risk. Where there are also aggravating factors at play, such as the total hardness of the drinking water or a high sulfate content, it is important to be able to rely on your disinfection measurement. While the disinfection of water leads to a reduction in the number of germs, an overdose of the disinfectant used is hazardous to human health. The in-house drinking water installation of the pathology department of the University Hospital in Würzburg counteracts microbial contamination of the drinking water.

The drinking water installation consists of a disinfection system for the production of hypochlorous acid (HOCl) as a disinfectant. Where such a system is used, drinking water regulations require operators of continuous drinking water disinfection systems to take daily measurements of the chlorine content in the drinking water, in order to ensure compliance with the limit values. It must be possible to demonstrate compliance with the limit value of 0.3 mg/l free chlorine to the health authority at all times. Performing these measurements manually is a costly and time-consuming challenge that requires trained personnel.

### Our solution

To circumvent the challenges associated with manual measurement, an automated measuring solution can be used, which records and stores the measured values digitally. This can be done extremely economically by using a water analysis panel to monitor the chlorine value, thereby creating a

solution for monitoring drinking water disinfection that is not only safe and non-hazardous to health, but also highly efficient.
NSI-Technik supports the pathology department of the University Hospital of Würzburg in mastering these challenges and offers not only a safe solution for the monitoring of drinking water disinfection that is harmless to health, but also an economical one.
In addition to the already installed disinfection system, NSI-Technik has sought a way to determine the chlorine content of the water at any time. Based on the measured value, the dosage of the disinfectant is adjusted. Only in this way can health be protected and the disinfection performance be ensured according to the applicable limit values.
The disinfection panel consists of various components. In addition to the CCS51D chlorine sensor, a pH sensor is used for pH compensation, thus ensuring that the value displayed on the Liquiline CM44x transmitter always corresponds to the conditions of the photometric reference measurement with DPD, even if the pH value fluctuates. This makes it possible for the user to compare the measured values directly with each other. When complemented with the Flowfit CYA27 flow assembly with flow monitoring, the analytical monitoring panel offers the ideal solution to the requirements and challenges of this measuring task.


Water analysis panel for monitoring drinking water disinfection

## Benefits at a glance:

- Straightforward and continuous online measurement: Continuous monitoring of the chlorine value eliminates the need for time-consuming measurement with the photometric DPD method, enabling the end customer to achieve substantial savings due to lower staff costs.
- Intuitive operation of the measuring point: The clear panel layout and user-friendly transmitter interface make for easy system control.
- Measured errors are a thing of the past: With untrained staff, measured errors can occur if measurement is not automated. With automated measurement and observation of the values, this type of error is avoided.
- Clear panel layout for a better overview: With optimal flow and sampling directly at the assembly, the best possible measurement is guaranteed.
- Low-maintenance components: Operating costs and maintenance requirements are kept to a minimum thanks to robust yet highly accurate components, such as the Memosens CCS51D free chlorine sensor.
- Easy commissioning and ease of communication with Endress+Hauser Support.

### Manufacture of disinfectant

Disinfectant is produced by means of electrolysis. In the first step, chlorine gas ($Cl_2$) is generated from sodium chloride (NaCl) and water ($H_2O$), which is then converted to hypochlorous acid (HOCl) and used as a disinfectant.

## Possible components of the disinfection panel

- Digital chlorine sensor for free chlorine Memosens CCS51D
- Digital pH sensor Memosens CPS31D
- Flowfit CYA27 flow assembly
- Liquiline CM44x transmitter
- Memosens cable CYK10

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