



Presse release

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Digital process optimization and production plant control

SAMSON and InfraServ Wiesbaden Join Forces to Develop Digital Information System for Biological Water Treatment Plant in Industrial Park

- **Successful pilot project based on SAMSON's IIoT platform**
- **Automated process control to keep track of operations in water treatment plant**
- **InfraServ Wiesbaden offers smart data analytics under product name KI Konzept**

SAMSON AKTIENGESELLSCHAFT and InfraServ GmbH Co. Wiesbaden KG have reached an important milestone as part of a strategic cooperation to advance digital solutions for process industry 4.0 environments. SAMSON is a leading supplier of products and systems to control the flow of all kinds of media. For over 110 years, the company has been specializing in control valve engineering. The company is currently focusing on the integration of smart products into Industrial Internet of Things (IIoT) environments. InfraServ Wiesbaden has managed the Kalle-Albert industrial park since 1997. The site in Wiesbaden is home to around 75 companies and the second-largest industrial park in the German Federal state of Hesse. The core competencies of InfraServ Wiesbaden include the supply of energy, the disposal of waste and the provision of modern infrastructure and industry services.

At the start of their strategic development cooperation in October 2019, SAMSON and InfraServ Wiesbaden launched a common pilot project to optimize the processes in the biological water treatment plant operated in the industrial park. The pilot project kicked off in

early 2020. In January 2021, the completion of the first project stage marked an important milestone.

First stage: IIoT-based information system

At the end of the first project stage, the newly developed information system for the water treatment plant went online. This system is based on SAMSON's IIoT platform, which was further developed and tailored to the information specific requirements as part of the cooperation with InfraServ Wiesbaden. The new system enables the mostly automated acquisition and provision of data required for plant operation and mandatory documentation to fulfill legal requirements. An extensive range of sensors and analytical equipment are used to collect data. Currently, 1,800 measured variables are processed. Data from an analytics lab at Infracerv Höchst are also imported into the platform as part of data acquisition. Furthermore, historical data from the previous system recorded as far back as 2009 were integrated into the new information system.

The data used in the new system, which are much more accurate and reliable, generate better key performance indicators. This results in a much more precise and user-friendly analysis of the highly complex processes involved in biological water treatment. Certain parameters, such as the dirt load at different processing stages, can also be visualized over a user-definable timeline.

Other highlights of the new system include digital operating logs, automated report generation for the site management and the authorities in charge of supervising the overall plant. Automated sample planning with label printing additionally facilitates operation of the plant. All in all, the plant is already running much more efficiently even though only the first project stage has been completed so far.

Mr. Jörg Kreutzer, head of the InfraServ Wiesbaden management, comments: "In our role as an industrial park operator, we are currently acquiring new digital capacities to keep up with the evolution towards Industry 4.0 and digitally controlled operations. Our aim is to increase the efficiency and effectiveness of our own supply and disposal operations. We also want to upgrade our services to satisfy our customers' need for attractive production conditions in the industrial park in the long term. The first stage of the pilot project with SAMSON to implement digital control of our water treatment plant was a huge success. We are immensely grateful to have SAMSON as our partner, who is highly innovative and ambitious."

Dr. Andreas Widl, Chief Executive Officer of SAMSON AKTIENGESELLSCHAFT, says: "The cooperation between InfraServ Wiesbaden and SAMSON AKTIENGESELLSCHAFT is an excellent example of how successfully the digital transformation of industrial companies can be conducted. Our SAM DIGITAL product line was developed to support our customers in optimizing the systematic acquisition, visualization and analysis of process data in the field. An important objective for us is to help the skilled team of experts make informed actionable decisions and not to replace them. I am very proud that our strategic cooperation with InfraServ Wiesbaden has turned out to be extremely fruitful and is paving the way for future digital developments."

Second and third stages: digital data analytics and AI-based process control

In the second stage of the pilot project that started in January 2021, the focus has shifted to data analytics on the IIoT-based platform. Once systematic data acquisition is achieved, the project team can define performance indicators to be calculated by the system. These performance indicators are used for detailed data analysis with the aim of optimizing processes. In the next few months, more process data will gradually be integrated into the system. As a result, it will be possible to reveal correlations between raw materials supplied to companies in the industrial park and the input required in the water treatment plant.

SAMSON's IIoT platform has the major advantage that it can integrate various data sources and offers far greater connectivity of the plant and system thanks to the newly programmed interfaces. In contrast to conventional computer systems, the platform also generates time series databases, which are a powerful tool for the processing and analysis of data including various visualization options.

During the course of the first six months of 2021, the project is scheduled to enter the third stage involving first attempts to digitalize process control in addition to data analysis. For this purpose, the project partners intend to develop algorithms that are based on artificial intelligence to automatically calculate possible ways of improving plant and process control. The long-term objective behind this development is the gradual transformation towards automated process control in which the AI-optimized parameters directly control specific process parameters.

Digital twins and pilot project

The pilot project is part of the cooperation between SAMSON and InfraServ Wiesbaden, which has been concluded for an unlimited period of time. The main goal is to jointly advance the IIoT platform that digitally supports the optimization of processes and plant control. SAMSON runs an IIoT-based multi-tenant platform for the digitalization, visualization and automated control of industrial plants. The platform includes flexible interfaces for the connection of customer systems and external analytical tools. In its role as industrial park operator and industrial service provider, InfraServ Wiesbaden develops and operates analog and digital solutions for companies based in the industrial park as well as for other companies. It offers smart data analytics under the product name KI Konzept. Customer access to the IIoT platform via the on-site data center is configured to ensure maximum data security.

The objective of the two companies is to continue the cooperation to jointly develop and expand SAMSON's platform. InfraServ Wiesbaden contributes to the cooperation by sharing the experience it has gained within industry and while programming specific control processes for its own facilities, such as the biological water treatment plant, or for the implementation of customer requirements. The result will be 'digital twins' of the analyzed systems to simulate plant control operations, analyze the flows of energy or goods as well as solutions for the smart, predictive, cost-effective maintenance of plants and equipment of medium-sized industrial companies.

Further Information

- SAMSON AKTIENGESELLSCHAFT: www.samsongroup.com/en
- SAM DIGITAL: <https://www.samsongroup.com/en/products-applications/digital-solutions/>
- InfraServ Wiesbaden: www.infraserv-wi.de/en
- KI Konzept: www.ki-konzept.de

Press contacts

- SAMSON AKTIENGESELLSCHAFT:
Mr Jürgen van Santen, Tel. +49 69 4009-1571, press-de@samsongroup.com
- InfraServ Wiesbaden:
Mr Thomas Deichmann, Tel. +49 611 962-5900, Thomas.Deichmann@infraserv-wi.de

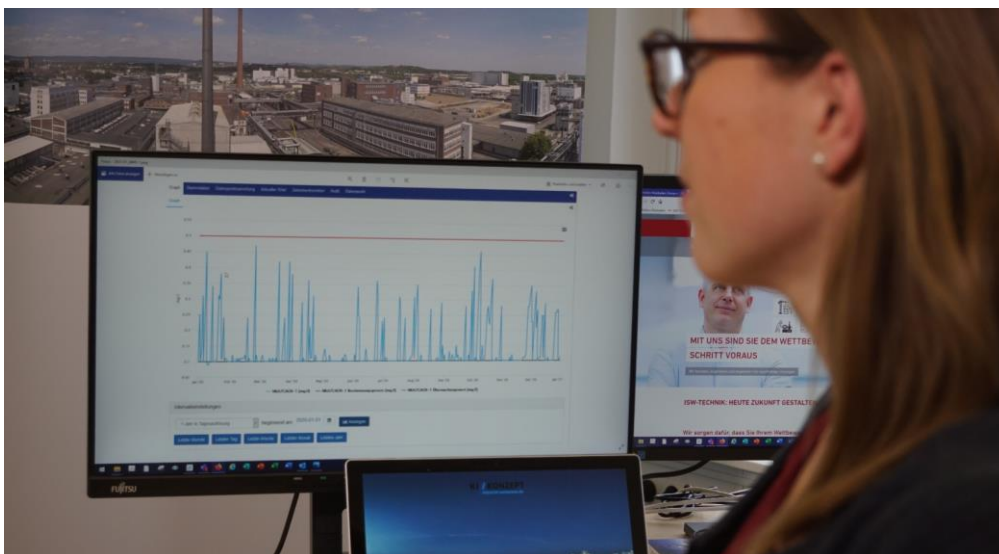
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- <https://www.samsongroup.com/en/news/press/press-releases/>
- www.infraserv-wi.de/de/startseite/presse.html

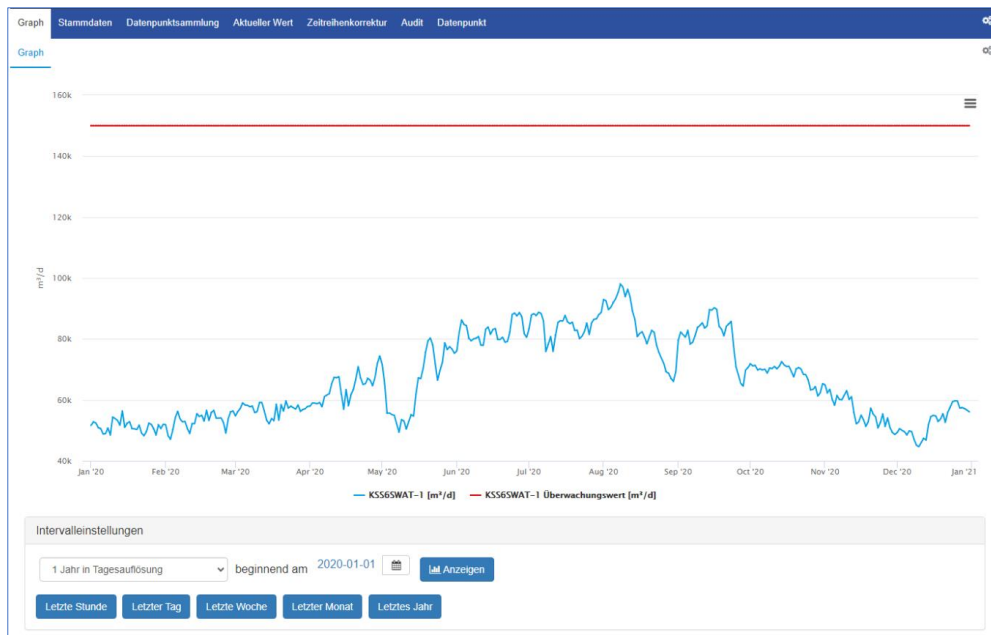
Photo credits: InfraServ Wiesbaden



As part of the strategic development cooperation between SAMSON and InfraServ Wiesbaden, the two companies launched a joint pilot project to optimize the processes in the biological water treatment plant in the industrial park.



Graph showing the calculated annual TOC (total organic carbon) load produced by a company in the industrial park. TOC is used as an indicator of the water quality. Calculations are based on the analysis of concentrations and the amount of water flowing into the biological water treatment plant.



Graph showing the annual wastewater processed by the biological water treatment plant.

About the biological water treatment plant

The biological water treatment plant that runs non-stop around the clock is one of the industrial facilities managed by InfraServ Wiesbaden in the industrial park. The main facilities to treat wastewater were built in 1972 on Petersaue, an island on the Rhine river, close to the industrial park. Additional auxiliary facilities, such as the pump station, are located opposite on the mainland on the Rhine river bank.

A network of pipes and underground drains transport the process wastewater and sewage from the industrial park to the biological water treatment plant. Around 15.000 m³ waste water is pumped daily to the plant. It takes around two days before wastewater treatment is completed and the treated water is fed into the Rhine river. The control room in the plant is also responsible for monitoring around 100,000 m³ cooling and rainwater from the industrial park before it is discharged into the Rhine after rigorous controls.

About SAM DIGITAL

SAM DIGITAL combines SAMSON's decade-long product experience in valve engineering and in-depth understanding of processes with smart information. SAMSON ASSET MANAGEMENT and the associated industry-specific applications are based on the ultramodern digitalization and automation platform by the SAMSON subsidiary Ubix. For further information go to <https://www.samsongroup.com/en/products-applications/digital-solutions/>.

About SAMSON

SAMSON offers products and systems to control the flow of all kinds of media. We specialize in control valve engineering. A trendsetter for over 110 years, SAMSON drives forward new developments and introduces innovations to the market. We have had a considerable impact on the evolution of valves from analog components to smart control valves. Today, our full focus lies on the opportunities provided to us through Industry 4.0.

SAMSON was founded in 1907 and is represented all across the world by roughly 4,500 members of staff. The company headquarters are located in Frankfurt am Main, Germany. In addition to our production sites in Germany, France, Italy, Spain, Turkey, India, the US, China and Russia, we have

more than 50 subsidiaries and over 200 representatives worldwide. For further information go to <https://www.samsongroup.com>.

About InfraServ Wiesbaden

InfraServ Wiesbaden has been operating Kalle-Albert industrial park in Wiesbaden and the Rhine-Main region since 1997. Together with its subsidiaries, such as [ISW-Technik](#) and GES Systemhaus, the company has a workforce of around 950 members of staff.

As a partner for industrial and medium-sized companies in the area, InfraServ Wiesbaden knits together all requirements placed on efficient process control, plant optimization and sustainable production. InfraServ Wiesbaden offers the complete infrastructure and a wide range of services for the companies located on site as an important contribution to their competitiveness. The services are geared towards tomorrow's digitalized industry in the age of the IIoT and Industry 4.0. Core competencies include the supply of energy and the disposal of waste. A modular support scheme is in place for infrastructure and building development, procurement, IT services, logistics as well as to handle commercial-related tasks.

At the moment, approximately 5,800 people work in around 75 companies located in Kalle-Albert industrial park. Around 300 vocational trainees are currently training for more than 20 different jobs at the [InfraServ Wiesbaden training center \(BiZKA\)](#) in the following areas: chemical engineering, technical engineering, IT, security, commercial handling and administration. With a total area of 960,000 m², Kalle-Albert industrial park is the second largest of its kind in the Federal state of Hesse. The park has been the industrial heart of the state capital in Wiesbaden since its early days around 1860.

For further information go to <http://www.infraserv-wi.de/en>. Follow us on [Twitter](#), [LinkedIn](#), [Xing](#), [YouTube](#) and [Facebook](#).