

Drinking water plant serves as test scenario for IIoT

Merck KGaA tests new Industry 4.0 technologies



Based in the German city of Darmstadt, Merck KGaA specializes in the areas of healthcare, life science and electronics. The company operates a wide variety of process engineering plants for chemical and pharmaceutical production at this and numerous other sites. A continuous increase in productivity, safety and sustainability is achieved through the use of innovative technologies from the Industrial Internet of Things (IIoT) and Industry 4.0.

“The plan is to deploy new IIoT technologies that prove successful in the test facility in production areas too and to roll them out to the entire plant.”

Michael Werske
Head of Utility Supply Services



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Site of Merck KGaA in Darmstadt, Germany: Group headquarters, research & development, production

In production, the main focus is on continuously increasing efficiency and safety, but also on sustainability; the entire company has set itself ambitious climate goals. To achieve all of these goals, Merck KGaA relies on smart sensor technology and connectivity solutions and is testing the Netilion IIoT ecosystem from Endress+Hauser.

The challenge To ensure that production is continuously optimized in terms of productivity and safety and the latest technology can be used, the engineering staff have a very high level of technological expertise. This is achieved not least by testing product innovations and new products in the areas of measuring technology and the IIoT. However, the testing of equipment and technology in production plants is a high-risk activity. For this reason, Merck KGaA identified the drinking water storage plant as the ideal environment for proof-of-concept scenarios.

The solution The tests focus on a wide range of new measuring devices as well as the Netilion IIoT ecosystem from Endress+Hauser. Werske sees great potential for the IIoT technologies currently in testing in terms of maintaining and repairing plants: “In future, we want maintenance to be status-based where possible. We currently carry out maintenance at set intervals, which costs money and uses up resources.” In future, however, maintenance intervals are to be dynamically aligned with the needs of the sensor. He explains this using the example of a flow measurement used for billing purposes, such as that used in drinking water storage: “Either this is checked annually on the test bench, or the device’s internal monitoring function runs continuously. The savings in working hours and the positive impact on plant availability are obvious.”

Merck KGaA are also enthusiastic about the FieldPort SWA50 WirelessHART adapter, which can be used to integrate any HART-enabled measuring point into the WirelessHart network. This is a loop-powered device and can be used to retrofit all HART-enabled measuring points. In addition, the adapter is compatible with third-party manufacturers and is extremely robust. With the data, an overview of the plant can be easily generated using the Netilion IIoT ecosystem; strategies for predictive maintenance can be developed, calibration intervals optimized or mobile asset management implemented, to name just a few possibilities.

Another new instrument is the cloud-based Micropilot FWR30 level measuring device. This was placed on a plastic tank containing an educt for the chlorine generator. The device wirelessly transmits its measured values directly to the Netilion cloud platform and therefore does not require any



The WirelessHART adapter (on left in photo) can be easily retrofitted into existing plants



Netilion Value visualizes the measured values on clearly arranged dashboards, which can then be accessed via smartphone, tablet PC or stationary computer

cables at all. The measured values and other data, e.g. current position, battery status or external temperature, are displayed in the Netilion Value service in various dashboard views, which can be accessed via smartphone, tablet PC or stationary computer. Michael Werske is in no doubt that the visual presentation of the data and information offers great added value: "It allows me to see at a glance that the plant is running within its specifications. With this smart sensor, I can access this information easily."

The result At Merck KGaA, it is possible to test the devices under real-life conditions and to develop know-how about the technology used before putting it to use in other plants and adopting it in the company's own standards. In this environment, there are few obstacles with regard to regulations, Ex and SIL requirements.

This approach promotes the successful implementation of new technologies and does so within the context of increasing productivity, safety and sustainability.

The measuring parameters tested for the Netilion IIoT ecosystem:

- Temperature sensors
- Pressure transmitters
- Analysis panel for chlorine concentration in drinking water
- Cloud-only Micropilot FWR30 level transmitter
- Promag W flowmeter with Heartbeat Technology



Further information:
www.netilion.endress.com

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