

The Siemens logo is displayed in a white box in the top right corner of the image. The background of the entire page is a blue-tinted digital interface showing a 3D wireframe model of a pump and associated piping. A semi-transparent data panel on the right side of the interface lists monitoring events for various pipe areas, including flow monitoring and event start times. The overall aesthetic is clean and technical, representing industrial digitalization.

# SIWA Pump Guardian

Preventing Pump Blockages and Improving Performance

## Putting an end to clogged pumps

The large number of sewage pumping stations distributed across the waste water network of a utility make it difficult to cost-effectively evaluate the health of each single asset and the risk of failure across its waste water network. Other factors further exacerbate the challenge: Increasing numbers and density of people disposing of fats and rags into the network increases the likelihood of blockages; climate change is leading to a greater number of extreme weather events that further increase the system load and, consequently, the risk of pollution incidents due to blocked systems.

## Siemens Industry Suite – smart apps for the water and waste water industry

Applications and digital services from the Siemens Industry Suite for the water and waste water industry ensure greater transparency, and thus identify potential for greater efficiency and savings and ensure a high level of supply security. With the Siemens Water (SIWA) applications developed especially for the water and waste water industry, operators can optimize energy efficiency, avoid water losses, prevent flooding, and take preventive maintenance measures, among other things.

## The solution: Identification of blockages and pump anomalies with SIWA Pump Guardian

The SIWA Pump Guardian is a secure IoT solution that prevents blockages and makes the performance of pumps and pumping stations completely transparent. It is based on SIMOCODE, a motor controller from Siemens with a proven deragging function for sewage pumping stations. The solution helps detect and prevent clogged impellers, blocked pipework, and blockages due to single events.

The system continuously monitors the current of the pump motors. If deposits form on a pump, SIMOCODE detects the change in motor current and automatically reverses the direction of the pump to remove and release the deposits, in this way reducing the likelihood of pump malfunction and failure that may cause uncontrolled releases in the network. SIMOCODE can be easily retrofitted to existing pump control panels.

### Maintain pump efficiency

The analyses collected by SIMOCODE are fed back into MindSphere and can be combined with other data to help you manage waste water intelligently and efficiently throughout your network. The system can detect and report blockages, reversals, high tank levels, and high or low pump utilization. It can also locate inefficient pumps or pumps that have gone offline.

To provide you with a constant view of your network's performance, SIWA Pump Guardian features:

- Notifications about anomalies such as preventing pump blockages and improving performance
- A map visualizing the location and condition of your pumping stations
- Key performance indicators, such as efficiencies and pump utilization, as well as raw data about wet well levels, pump runs, energy consumption, and more

### End-to-end Security

Security is particularly crucial for industrial systems and critical national infrastructures. That is why MindSphere's embedded security framework follows strict industry standards such as IEC 62443/ISO 27001 and NCSC guidelines as well as government recommendations.

### What is MindSphere?

Siemens MindSphere is a cloud-based Industrial Internet of Things (IIoT) operating system that enables the industry to link their machines and physical infrastructure to the digital world easily, quickly, and economically. As a Platform as a Service (PaaS) it is hosted on either AWS or Azure infrastructure.

## The benefits of SIWA Pump Guardian



Reduction of sewer blockages and flooding risks



Avoidance of penalties due to pollution incidents



Increase of operational productivity



Optimization of CAPEX and OPEX efficiency through improved operation, maintenance, and asset replacement strategies

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

Published by  
Siemens AG

Digital Industries  
Process Automation  
Östliche Rheinbrückenstr. 50  
76187 Karlsruhe, Germany

Published in the US by  
Siemens Industry Inc.  
100 Technology Drive  
Alpharetta, GA 30005  
United States

Article No. VRWS-B10009-00-7600  
Dispo 41513 fb 8313 WS 1020

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