surphase
Smart Water Engineering

Unlocking operational excellence
in water desalination plants

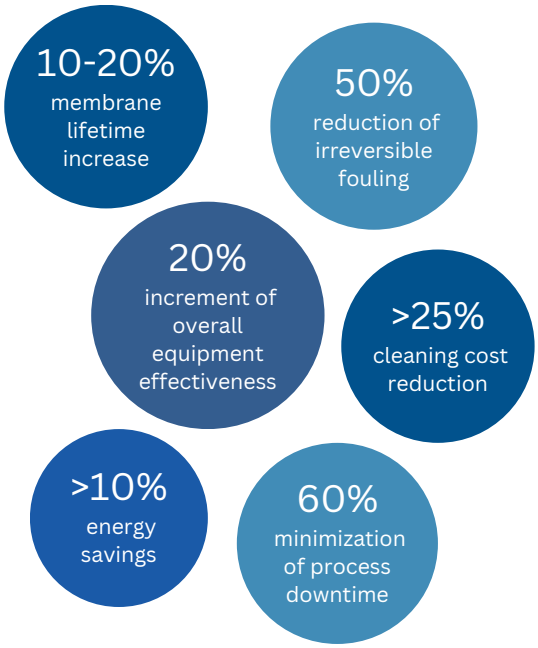
www.surphase.eu

Our approach

Water scarcity poses a significant challenge worldwide and among the available technologies to address this problem, **membrane desalination** stands out for its lower energy requirements. However, it has one major issue: membrane fouling.

Membrane fouling significantly jeopardizes the efficiency and sustainability of the membrane desalination plants worldwide, which leads to significant economic losses for operators and an increase in the final price of such a common good as water.

To face this global problem SURPHASE revolutionizes membrane monitoring by providing a **real-time** and **non-invasive detection**, as well as an **analysis of fouling and cleaning**. This detection **surpasses existing sensitivity limits** reaching nano levels. SURPHASE empowers operators with **predictive**, **automatized** and **self-optimizing maintenance**.



Our technology enables the plants to operate in a **“greener”** and **cost-efficient**. As the sole provider of such precision and versatility, SURPHASE emerges as the go-to solution for enhancing fouling and cleaning monitoring and optimizing water treatment processes, setting a new standard for the desalination industry.

Technology

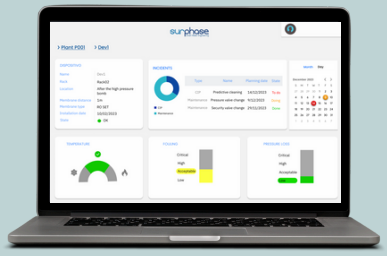
Our **unique sensor system** and **AI-assisted software** platform represents a real shift in the water desalination sector unlocking its operational excellence and sustainability. It not only **predicts potentially harmful fouling levels** while the plant is still operating efficiently; it truly revolutionizes membrane monitoring by unveiling at every moment the state of the membrane surface. In this way, the system provides **actionable inputs for successful operational strategies** with strong impact on running costs.

Nano-level sensor system

SURPHASE technology uses a **disruptive sensor-based technology** that monitors and detects membrane fouling in **real time** and in a **non-invasive** way. This system has a sensitivity in the nanoscale range, with 1000 times **higher sensitivity than existing methods**. As the device performs in parallel to the industrial process, the system provides actionable inputs to plan preventive cleanings avoiding the risk of reaching irreversible fouling levels.

Digital platform

Our software uses **machine learning** and **artificial intelligence algorithms** to process the data collected by the device. In this way, it empowers the plant operator with insights on the state of the membrane fouling in real-time. Moreover, our **smart-alarms system** notifies the operator when critical fouling conditions will be approaching and enables preventive cleanings. This monitoring increases the operator's control over the whole process.



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