

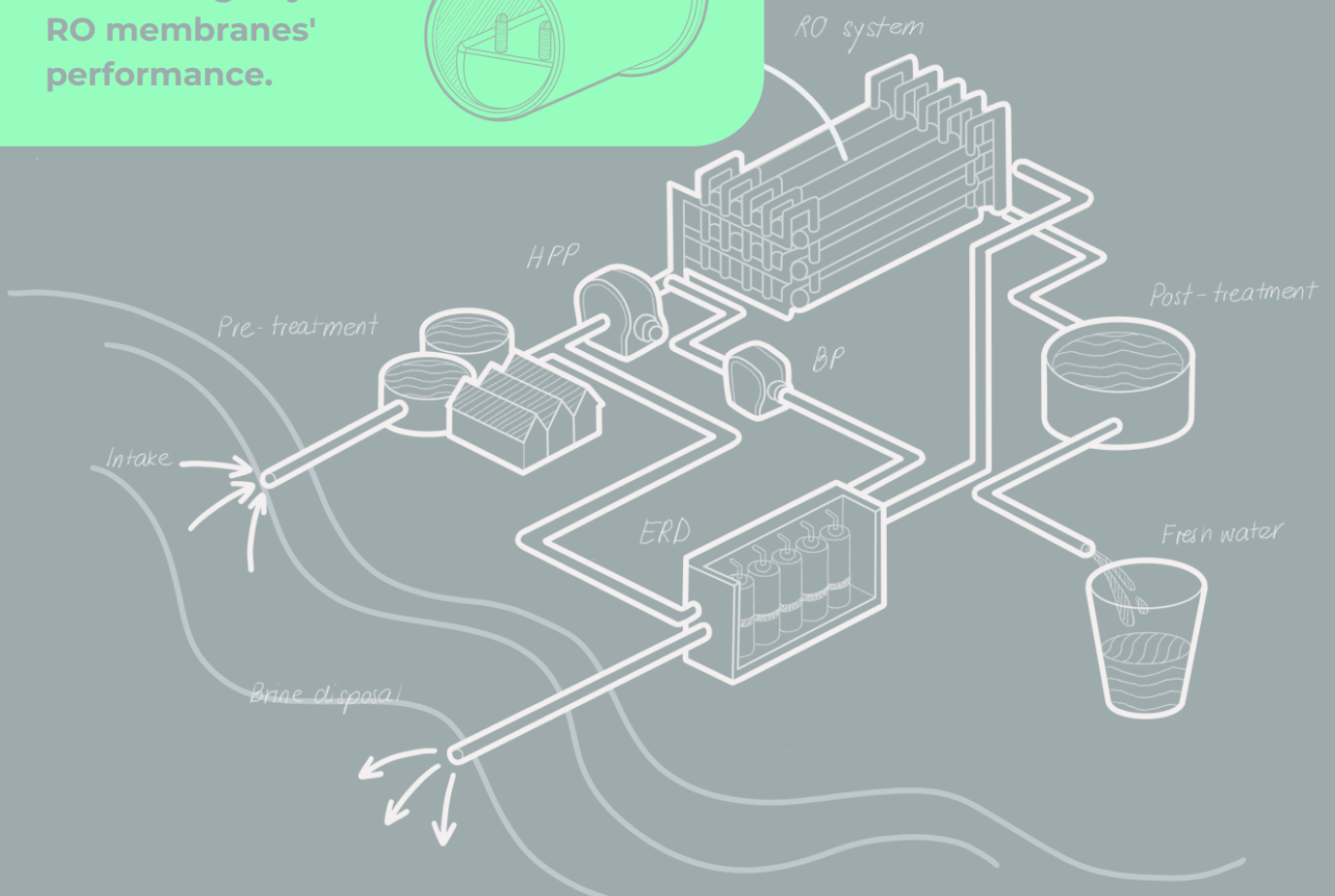


INSTRUMENTATION  
TECHNOLOGIES

# Elevate Your Plant's Potential with

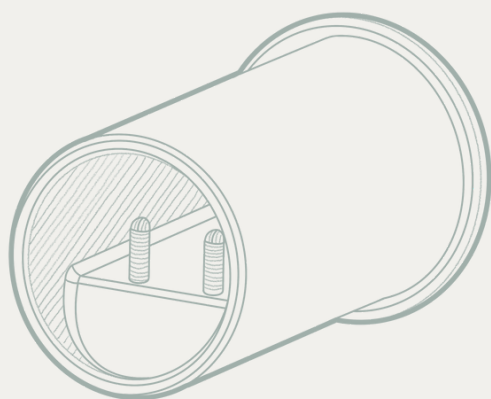
# SWICSSY

Ensure real-time  
monitoring of your  
RO membranes'  
performance.



# SWICSSY

Submerged wireless conductivity sensor system



With SWICSSY, you **transform** your **RO membrane** maintenance approach, ensuring **optimal performance**, **minimizing downtime**, and **maximizing cost savings**.

Say hello to a more efficient, proactive solution for your desalination plant.





## CURRENT CHALLENGES

- **Reactive Maintenance:**  
*Traditional methods lead to reactive maintenance, resulting in costly downtime.*
- **Laborious Maintenance:**  
*Tiresome manual mapping and probing processes.*
- **Safety Risks:**  
*Manual procedures pose safety hazards to personnel and equipment.*
- **High costs:**  
*Shutdowns for maintenance incur significant expenses and disrupt operations.*

## SWICSSY SOLUTIONS




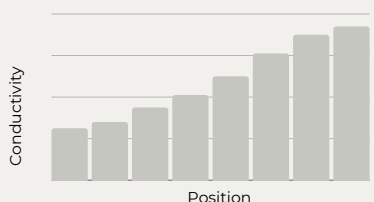

- **Predictive Maintenance:**  
*Identify and address membrane issues before they impact operations.*
- **PV Performance Visibility:**  
*Gain real-time data on PV or specific RO membrane performance.*
- **Streamlined Operations:**  
*Automate tasks to eliminate the need for manual intervention, enhancing safety and efficiency.*
- **Seamless Integration:**  
*Integrate measurements seamlessly into operational strategies without halting plant operations.*

# Optimizing PV PROFILING with SWICSSY

<p><b>LESS</b></p> 	<p><b>MONITORING</b></p> <p>Current profiling methods require a dedicated staff member to collect samples from each Pressure Vessel (PV), consuming valuable manpower and time.</p> <p>SWICSSY <i>revolutionizes profiling</i> by offering <b>automated, continuous monitoring</b> of PVs, eliminating the need for dedicated personnel and reducing labor costs.</p>	<p><b>COST</b></p> 	<p><b>INSTANT ALERTS</b></p> 
	<p><b>AUTOMATED</b></p>		<p><b>REAL-TIME MEASUREMENTS</b></p> <p>Testing is typically performed on a weekly basis, resulting in delays in identifying issues. Gain immediate insights into conductivity levels with SWICSSY's real-time measurement capabilities, enabling prompt response to deviations.</p> <p>SWICSSY provides <i>instant alerts</i> and notifications, facilitating <b>predictive maintenance</b> and <b>minimizing downtime</b>.</p>
<p><b>SHORT REACTION TIME</b></p> 			

## EFFICIENT PROBING with SWICSSY

SWICSSY leads to **cost savings** through optimized maintenance schedules, reduced risks for personnel, and increased productivity.

	<p><b>COMPREHENSIVE COVERAGE</b></p> <p>There's a risk that not all RO Membranes are adequately probed during periodic checks.</p> <p>With SWICSSY you ensure every RO Membrane is <b>consistently monitored in real-time</b>, providing <b>continuous insights</b> into performance trends.</p>	<p><b>PROACTIVE</b></p> 
<p><b>AUTOMATED PRECISION</b></p> <p>Current practices involve periodic probing, which can be time-consuming and disrupt plant operations.</p> <p>SWICSSY offers a <b>revolutionary solution</b> by <b>systematically and automatically measuring conductivity</b> in each RO Membrane <b>continuously and accurately</b>.</p>	<p><b>PRECISION</b></p> 	<p><b>CUSTOMIZABLE MONITORING</b></p> <p><b>Tailor</b> SWICSSY's monitoring intervals <b>to suit your plant's needs</b>, from as frequently as every 10 minutes to longer intervals, providing <b>flexibility</b> without sacrificing accuracy.</p>
		<p><b>ENHANCED SAFETY</b></p> <p>Traditional methods require manual insertion of probes to measure conductivity, posing safety risks and potential inaccuracies.</p> <p>SWICSSY's <b>non-intrusive monitoring system</b> <b>eliminates</b> the danger associated with manual probing.</p>

# TECHNICAL SPECIFICATIONS

## SIP

## Conductivity Sensor

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Conductivity measurement range</li><li>• Conductivity indicator range</li><li>• Measurement accuracy in measurement range</li><li>• Measurement accuracy in indicator range</li><li>• Temperature measurement range</li><li>• Temperature measurement accuracy</li><li>• Wireless power supply</li><li>• Wireless communication</li><li>• Power consumption</li></ul> | <ul style="list-style-type: none"><li>• 100uS/cm - 1400uS/cm</li><li>• &gt; 1400uS/cm</li><li>• &lt; 5%</li><li>• &gt; 5%</li><li>• 0°C - 60°C</li><li>• +/- 0,5°C</li><li>• No need for battery</li><li>• Half-duplex</li><li>• 10mA @3V3</li></ul> |
|---|--|

## Key features

- Ethernet connectivity
- API access - optionally system could be integrated in Scada systems
- Support for Grafana - online data visualization tool that works on Windows, Linux, IOS
- Easily scalable system to support multiple rack setups
- Configurable setup of pressure vessels

## SOP

## Outer unit of conductivity sensor

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Power supply</li><li>• Power consumption</li><li>• I/O access</li><li>• IP level</li><li>• Returned results</li></ul> | <ul style="list-style-type: none"><li>• 12VDC</li><li>• 50mA - 80mA</li><li>• CAN bus</li><li>• IP67</li><li>• raw measured values</li><li>• uS/cm @25°C</li></ul> |
|---|--|

## Stack node

## SWICSSY controlling device

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Power supply</li><li>• CAN bus interface on SOP side</li><li>• Power consumption</li></ul> | <ul style="list-style-type: none"><li>• 230VAC, 50Hz</li><li>• Up to 127 devices</li><li>• Limited to 5A, depends of number of SOP's connected.</li><li>• Wired and wireless</li><li>• Hard drive</li></ul> |
| <ul style="list-style-type: none"><li>• Connectivity</li><li>• Local data-storage</li></ul>  |   |

## About INSTRUMENTATION TECHNOLOGIES

European high-tech company with more than 25 years of experience developing instruments for **high-speed signal acquisition and data processing** in the fields of **High-energy science, Transportation, Telecommunications, Aerospace, Energy, Water treatment** and **Defense**.

In 2022, Instrumentation Technologies developed **SWICSSY** in response to a challenge presented by Acciona within the Digifed program. The challenge was to establish an end-to-end digital solution for measuring, reporting, and visualizing the performance of each reverse osmosis membrane within pressure vessels as part of their desalination plants.

**SWICSSY** is a testament to the successful transfer of knowledge and capabilities into the water treatment industry.

## 25 YEARS OF EXPERIENCE

HIGH-SPEED

SENSORICS

DATA ACQUISITION

WIRELESS COMMS

## HOW WE WORK

IDEATION

DESIGN

DEVELOPMENT

CERTIFICATION



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