SYSTEMS ENGINEERING

Swan Systems Engineering

Complete Online Water Steam Cycle Monitoring Solution

Swan Systems Engineering is a global leading provider of online analytical systems and services in the steam and water industry, with no territorial or technological limitations.

Our mission is to deliver reliable and high-performance systems, ensuring our customers are well served during and after a contract execution.

With more than 20 years' of experience in the sector and more than 200 successful projects, Swan Systems has demonstrated their technical and economic viability of a state-of-the-art Swiss Made analytical system based on the use of the highest quality components on the market, latest technology analyzers and best in class engineering. Safe operation of the systems is our top priority. Therefore, we emphasize robust and low-maintenance systems for reliable control and continuous operation.

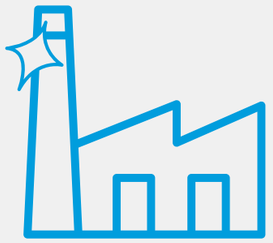
Your Single Source Supplier

We provide specific assessments and analysis based on plant inspections for the optimization and modernization of existing systems, as well as maintenance contracts to ensure the plant runs smoothly, reliably, and cost-efficiently. When designing a sampling system we focus on the following key elements:

- Understanding the process from which the sample originates and the purpose of the measurements
- Conditioning of sample temperature, pressure and flow in all operating conditions
- Measuring the required parameters with suitable and reliable instruments
- Providing remote measurement signals and alarms allowing clear validation of the measurements at DCS level

We provide assembly and testing of designed systems, start-up and commissioning, maintenance, and training as well as after sales service.

Your Expert in Steam & Water Analysis Systems (SWAS)



Turn-Key Solutions for Newly Built Plants

We suggest alternatives and improvements where we consider the specification to be unclear or incomplete. Our primary goal is to deliver a SWAS fit for the planned application so you can rely upon the function of your system for a long-lasting period of operation.

As an expert in the field of online water analyzers, we are your partner of choice when it comes to defining the functional requirements of a SWAS package. We can provide general contractor services, coordinate on-site disassembly and re-installation works.

For EPC Contraction

We build turn-key subsystems minimizing on-site installation work. We can provide general contractor services, coordinating on-site disassembly and re-installation works. As a member of the Swan group, we have the stable financial basis required to realize large SWAS projects.

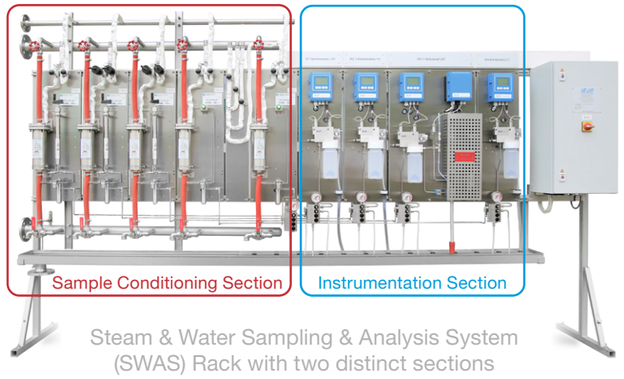
Refurbishment of Existing SWAS

A SWAS refurbishment project requires proper specifications to define design, associate cost and execution time. Our solutions are tailored to your unique needs and requirements, improving and simplifying the systems whilst ensuring consistent performance and validation of the measurements. Our system engineering typically includes the following:

- On-site survey:
  - Assessment of current system configuration and performance
  - Assessment of current instrument needs
- Design concept and preliminary planning
- Preparation of tender documentation and budgetary offer

Steam Water Analysis Systems (SWAS)

Shelter-based sampling system for outdoor installation

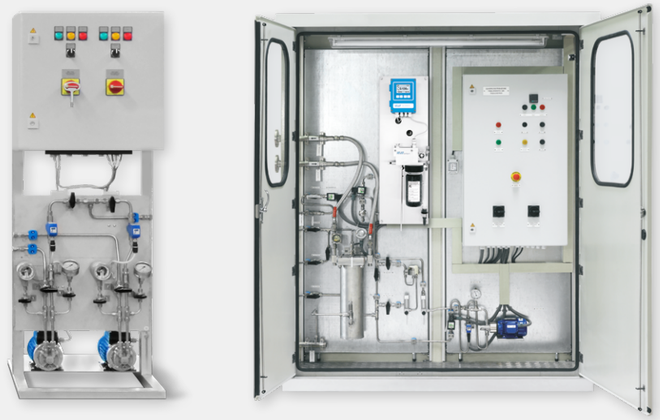


Steam & Water Sampling & Analysis System (SWAS) Rack with two distinct sections

Single Line Panel

Special Solutions

Wastewater Sampling System



Condensate Hotwell Sampling System

Refurbishment for indoor installation

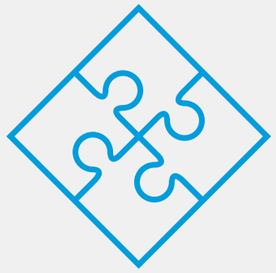
Solutions and Services to meet Your Needs

Customized Solutions

Whether special skids, cabinets outdoor or indoor installations are required, Swan Systems Engineering can provide a custom-made SWAS.

- A shelter-based sampling system for outdoor installation protects the sampling and analyzing equipment and provides a suitable and safe work environment for the chemistry operators and lab technicians.
- Arack-based installation is the most cost-effective and fast solution for indoor installations. There are different design concepts (one side, double sided, L-shape) that can be pursued to meet your installation location requirements.
- A cabinet-based solution to accommodate smaller sampling systems for outdoor installation, especially when installed closed to the sample take-off point.

All components are grouped and arranged in a modular and readable manner allowing easy access, operation and maintenance.



Standard Solutions

The SLP is a pre-assembled rack for indoor installation of online analytics for a single water- or steam sample. It provides 40-50 l/h of cooled sample at a constant pressure of 0.5 bar.

It is typically used where local monitoring of a single sample is required, usually return condensates or district heating water.

- Equipped with profiles for easy mounting
- Water or steam samples up to 540 °C and 150 bar
- Various configurations are available, depending on sample temperature and pressure conditions.

Engineering and Services

The best sampling and analysis system is worth nothing in the long run if it is not operated and serviced properly. To help you make the most out of your investment, we offer the following on-site services:

- Supervision of erection works
- Commissioning services
- Trainings for instrumentation and sample conditioning
- Troubleshooting (remote and on-site)
- After-sales service
- Spare parts & consumables in collaboration with our local representatives.

Worldwide Representation with Guaranteed Swiss Made Quality

Global Representation

Our customer-focused sales network consists of Swan subsidiaries in 15 countries and official contractual international partnerships in 62 more countries around the globe.

Our local sales representatives are supported by their regional customer service task forces. They take care of installation, maintenance, training, troubleshooting and any issues that may occur in an efficient way.

With our sales and support network present around the globe, we are a dependable business partner, wherever you are located.

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Swiss Made

Our custom-tailored, comprehensive systems and services destined for your individual applications consider specific in situ requirements and are planned, produced, documented and tested at the headquarters in Switzerland. A close collaboration between all involved departments guarantees an efficient and hassle-free solution.

SWISS MADE

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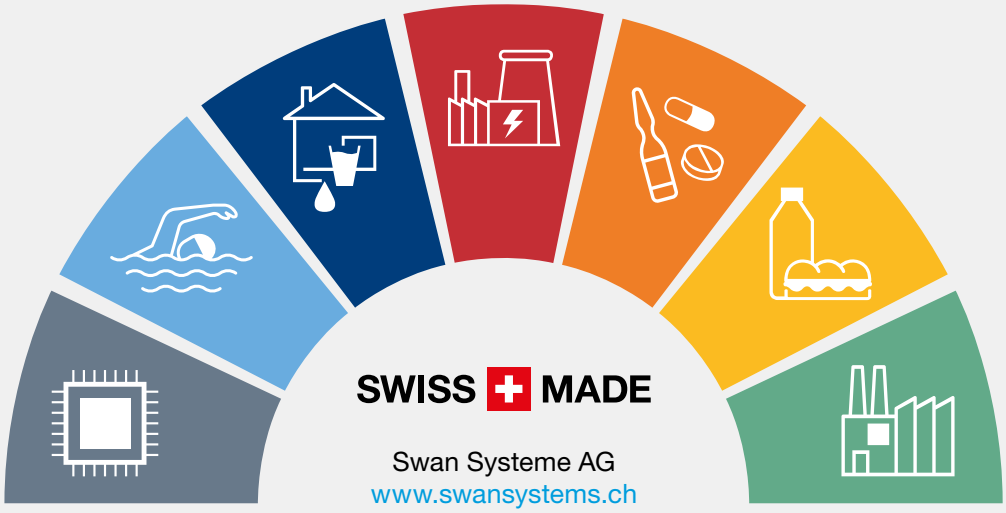
SYSTEMS ENGINEERING

- Swan Headquarters
- Swan Subsidiaries
- Distributors



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