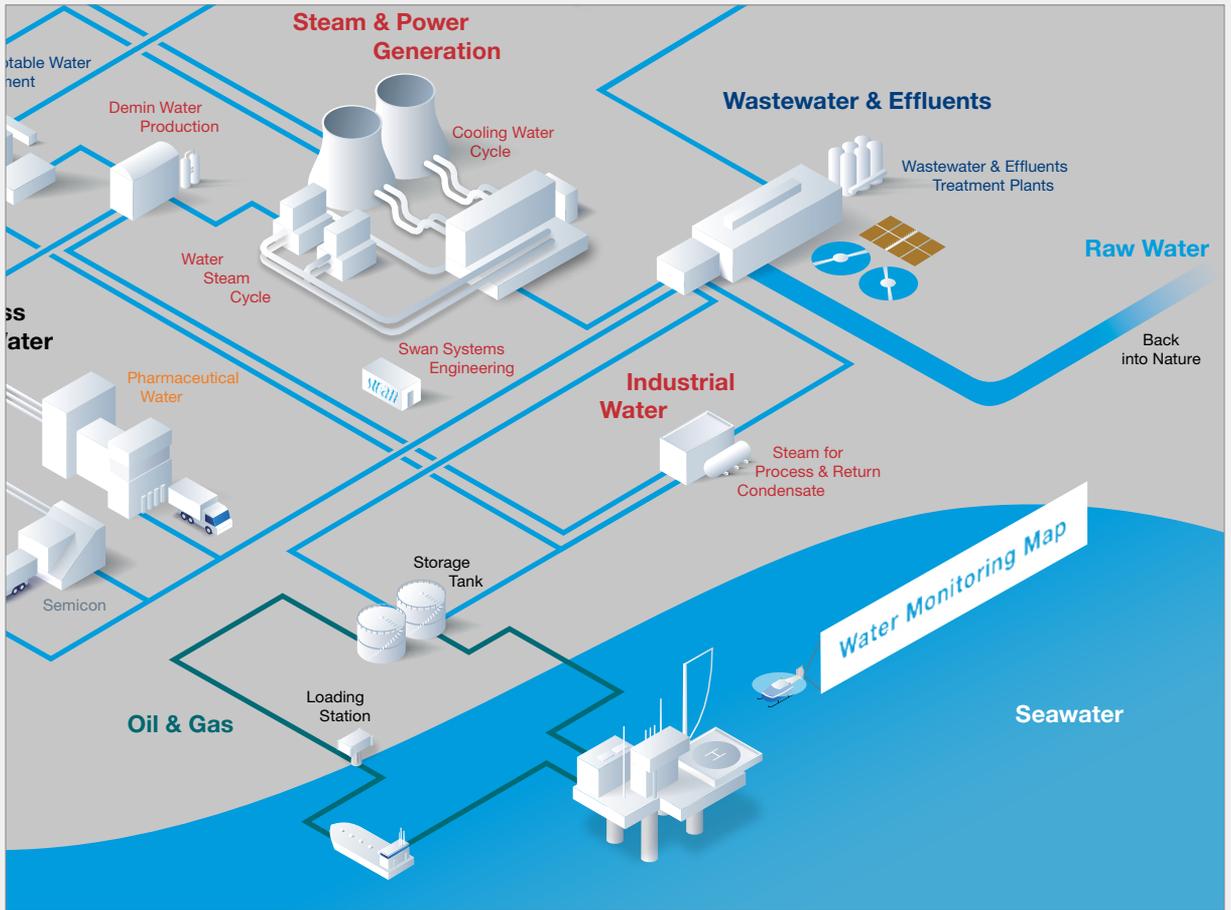




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— Reliable Online Monitoring for
— Water in the Oil & Gas Industry



Application Areas in the Oil and Gas Industry



Due to the physical properties of oil, the requirements for analyzers differ vastly from typical water monitoring applications. Our specific products for hydrocarbon detection benefit from the long history of Seres OL in this market.

In addition to our portfolio for online water and steam monitoring, we are now also able to provide our customers with a wider range of applications in the on and offshore oil and gas industry.

Typical monitoring application areas throughout the process include:

Water in Oil Detection for Improved Oil Storage

With the Pautbac II, loss and disposal cost of released hydrocarbons are minimized, and your product quality is ensured. The automatization of the tank dewatering process increases your storage capacity and ensures high operational safety (HSE).

Process Steam Production (Feedwater, Steam and Condensate)

Demineralized water used in water steam cycles is often conditioned with additional chemicals. Controlled chemical operations are key to ensure stable metal oxide layers and preventing gradual deterioration of all wetted components.

Cooling Water Monitoring (Industrial Cooling Water)

In cooling water applications, monitoring needs revolve around disinfectant and the prevention of scaling and biofouling. Our instruments are built to handle heavily loaded material and are used for dosing control and monitoring.

Discharge Monitoring to Protect Environment (Wastewater & Effluents)

Wastewater is subject to strict Oil in Water regulations which require additional steps before discharging or recycling. The online instruments, such as the OPAL detector, which monitor the corresponding parameters are readily available and designed to operate accurately even under challenging circumstances.

Feedwater, Steam and Condensate

Conductivity (Specific/Acid)

Total Organic Carbon

Further Analyzers



AMI CACE

Conductivity before and after cation exchange (CACE) with EDI module for automatic and continuous resin regeneration

- No resin columns needed:
 - no resin exchange
 - no chemicals for regeneration
 - reduced maintenance
 - reduced operation costs
- Uninterrupted measurement of CACE: No gaps and no high CACE values caused by exhausted resin

Specific Conductivity
0.055-1000 $\mu\text{S/cm}$
Acid Conductivity
0.055-1000 $\mu\text{S/cm}$

pH Range
pH 7.5-11.5
Alkalizing Agent
Concentration in ppm
(e.g ammonia 0.01-10 ppm)

TOC Evolution VUV

Measurement of Total Organic Carbon (TOC) in return condensate and raw water

- TOC measurement by UV/VUV and persulfate advanced oxidation process
- Programmable interval for analysis time
- Automatic, electrical zero measurement prior to each measurement cycle
- Automatic cell cleaning
- Option for 2nd sample channel (similar range)

Total Organic Carbon (TOC)
0-2 ppm
0-10 ppm
0-100 ppm

Topaz Series

Single parameter monitor series for countless applications

- Available in several measuring ranges
- Low operating costs, minimal reagent consumption, simple and efficient maintenance
- Automatic, electrical zero measurement prior to each measurement cycle
- Option for 2, 4 and 6 sample channels (similar range) with fully programmable sequences

Chloride
Iron
Phenol
Total Alkalinity
Total Hardness
more on request

AMI Silitrace

Colorimetric measurement of reactive silica in the water steam cycle and demineralized water production

AMI Sodium P

Dissolved sodium for samples with $\text{pH} \geq 7$

AMI Hydrazine

Membrane-free, amperometric three electrode system for determination of hydrazine or carbonylhydrazide

AMI pH-Redox QV Flow

Potentiometric determination of pH value or redox potential for low conductivity samples

AMI Phosphate HL

Colorimetric measurement of ortho-phosphate in boiler water and applications with high phosphate concentration

AMI Turbiwell Power

Contact-free turbidity measurement for corrosion products trend monitoring

and many more



Industrial Cooling Water

Disinfectant



AMI Codes-II

Colorimetric measurement (DPD-method) of free chlorine and other disinfectant concentrations

- No interference with sea water and effluents, or additives like corrosion inhibitors and antiscalants
- High accuracy and reproducibility due to automatic zero-value calibration before each measurement
- Reduced maintenance with optional cleaning module and high tolerance against fouling

Free Chlorine
0-5 ppm
Chlorine Dioxide, Bromine
0-6 ppm
Ozone
0-1 ppm

Conductivity (Specific)



AMI Solicon4

Specific (total) conductivity for surface water, cooling water and effluents

- Selectable temperature compensation with absolute (none), linear coefficient or non-linear function
- Insensitive to fouling due to 4-electrodes principle. No measuring errors due to polarization effects
- Measurement of concentrations (for NaCl, NaOH and acids in %), salinity and TDS possible
- Optional deltaT sensor for flow detection

Specific Conductivity
0.1 µS/cm-100 mS/cm
Salinity (as NaCl)
0-4.6%
TDS (Coefficient)
0.0 mg/l-20 g/l

pH/Redox Potential



AMI pH-Redox M-Flow

Potentiometric measurement of pH value or redox potential for surface water, cooling water and effluents

- pH or redox combined electrode with gel electrolyte, with a Pt1000 temperature probe
- Automatic temperature compensation for pH measurement according to Nernst
- Easy calibration without sensor disassembling
- Minimized maintenance with optional spray nozzle for sensor cleaning

pH Range
pH 1-13
Redox Potential (ORP)
-400 to +1200 mV

Further Analyzers



AMI Phosphate-II

Colorimetric measurement of ortho-phosphate with low concentration in potable water, effluents and cooling water

AMI Turbiwell 7027

Contact-free measurement of turbidity in raw water, water treatment plant, cooling water and effluents

Chematest

The reliable, accurate and robust handheld device for photometric measurements with the option to measure pH, redox potential or conductivity via external sensors is the ideal companion to validate your online analysis.

and many more



Wastewater & Effluents (Discharge Water)

Hydrocarbon



OPAL (Oil Pollution Alarm)

Measurement of suspended hydrocarbon in water for early detection

- Reagent-free infrared measurement of suspended hydrocarbon
- Compact and comprehensive system, including pump for homogenic sample preparation
- Various setups available: Standard, ex-proof (ATEX/EAC), IMO approval
- Automatic and periodic wiper cell cleaning
- Up to 3 selectable, pre-calibrated measuring ranges
- Zero calibration on clean water

Non-dissolved
Hydrocarbon
0-1000 ppm



Turbidity



AMI Turbiwell 7027/W/LED

Contact-free measurement of turbidity in raw water, water treatment plant, cooling water and effluents

- AMI Turbiwell W/LED as per US EPA 180.1
- AMI Turbiwell 7027 as per ISO 7027 (infrared red LED)
- Heated optics prevent measurement errors and condensation
- Integrated constant head for continuous sample flow into the measuring chamber
- No consumables, no wearing parts, no maintenance costs
- Optional deltaT flow meter, and sample degasser to avoid the formation of interfering bubbles in the sample

Turbidity (ISO)
0-200 FNU/NTU
Turbidity (EPA)
0-100 FNU/NTU

Multiple Parameters



Topaz Series

Single parameter monitor series for countless applications

- Available in several measuring ranges
- Easy to operate: semi-automatic calibration, automatic zero and cell cleaning
- Automatic, electrical zero measurement prior to each measurement cycle
- Easily accessible peristaltic pump modules for accurate, automatic dosing of chemical reagents
- Option for 2, 4 and 6 sample channels (similar range) with fully programmable sequences

Fluoride
Phenol
more on request

Further Analyzers



AMI Oxysafe

Amperometric measurement of dissolved oxygen

AMI SAC254

Measurement of UV absorption at 254 nm (SAC254) for organic carbon trending

AMI Codes-II CC

Colorimetric measurement (DPD-method) of free, bound and total chlorine

AMI pH/mV:pH/mV

Monitor for simultaneous, continuous measurement of pH and redox (ORP) in potable water and effluents

AMI Phosphate-II

Colorimetric measurement of ortho-phosphate with low concentration in potable water, effluents and cooling water

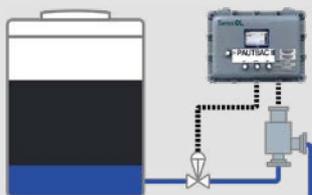
and many more

Oil Storage

Hydrocarbon



Tank Installation



Pautbac II

Process controller for automatic or semi-automatic water drainage from oil storage tanks for petroleum/petrochemical industries

- Suitable for all types of hydrocarbon: crude oil, light oils, diesel, jet fuels, etc.
- Reagent-free, teflon-coated capacitive probe – no need for expensive maintenance or consumables
- Online measuring chamber: detection on the real flow going to discharge (drain)
- Suitable for potentially explosive areas – ATEX, EAC

Suspended Hydrocarbon
Adjustable threshold
5-25%

Single Components

Transmitters and Sensors



AMI/AMU Inducon

AMI/AMU transmitter for industrial plants and wastewater applications

- AMI transmitter case made of aluminum and conformed to IP66/ NEMA 4X
- AMU transmitter case made of Noryl® resin and conformed to IP54 (front panel), complies with DIN 43700 for easy mounting in control panels

Sensors Inducon1000

- Inductive (toroidal) conductivity sensor with built-in Pt1000 temperature probe

Conductivity
0-2000 mS/cm
NaCl, NaOH and acids
Concentration in %
Salinity as NaCl
Concentration in %
TDS as NaCl
Concentration in %

AMI/AMU Solicon4

AMI/AMU transmitter for surface and cooling water applications

- Two potential-free contacts, programmable as limit switch or PID-control, and two scalable current outputs (0/4-20 mA)
- Selectable coefficient or nonlinear function for natural waters according to EN 27888/DIN 38404

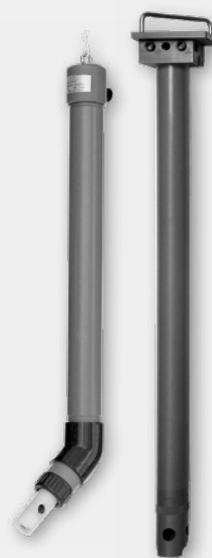
Sensors Shurecon P/S

- Four-electrode conductivity sensor with built-in Pt1000 temperature probe

- Unaffected by fouling. No measuring errors due to polarization effects

Conductivity
0.055-999 μ S/cm
1-100 mS/cm
Automatic range switching

Accessories



Swanfit

Immersion assembly for use in open basins, channels and tanks

- All cables are fitting by threaded joints, weather-protected
- Variety of installation accessories available

Immersion Assembly UNIDIP

- Different extension lengths available
- Immersion assembly for 3 sensors (pH, ORP, temperature or conductivity) or for one oxygen sensor



Seres OL Product Line



The requirements for successful monitoring are mainly defined by two factors: the intended application and the required parameter.

We conceptualize, develop and produce complete online water monitoring devices. Optimized for best measuring results and customized for its respective end use. Always providing you with measuring results you can rely on.

Highest standards in development and production assure the instrument quality expected by our customers.

Reliable Process Data, Robust Design

Analyzers of Seres OL pursue one goal only: Deliver trustworthy data. Our robust, high performance instruments are optimized to persist in the field. Giving you correct information continuously and reflecting your actual water properties.

Made in France

Lean structures characterize Seres OL. With all departments from R&D to production to quality control working closely together at our headquarters in Southern France, we take care of customer requests flexibly and in a straightforward manner.



Swan AMI Monitor Concept



Swan instruments are delivered as fully functional, ready-to-use instruments. This ensures easy system integration as well as user-friendly operation and maintainability.

Highest standards in development and production assure the instrument quality expected by our customers.

SWISS  MADE

Full System Integration

- Complete panel-mounted systems with fluidics connections preconfigured for quick start up
- Various communication possibilities with Profibus, Modbus, HART-Protocol, USB-interface and analog output
- Simple process engineering with regulation functions (P, PI, PID or PD), relay or analog output

Easy Maintenance

- Uniform menu navigation for easy operation and maintenance – one platform for all instruments
- Clearly arranged setup of instruments, good accessibility of all components for efficient operation and maintenance
- Self-explanatory maintenance procedures can be easily performed by the operating company

Highest Quality Assurance

- Every analyzer is wet bench tested and factory calibrated prior to delivery
- Automatic instrument alarms and self-diagnostic such as reagent level and sensor functions for validated results
- Integrated sample flow control for measurement check available for all analyzers





- Swan Headquarters
- Swan Subsidiaries
- Distributors

