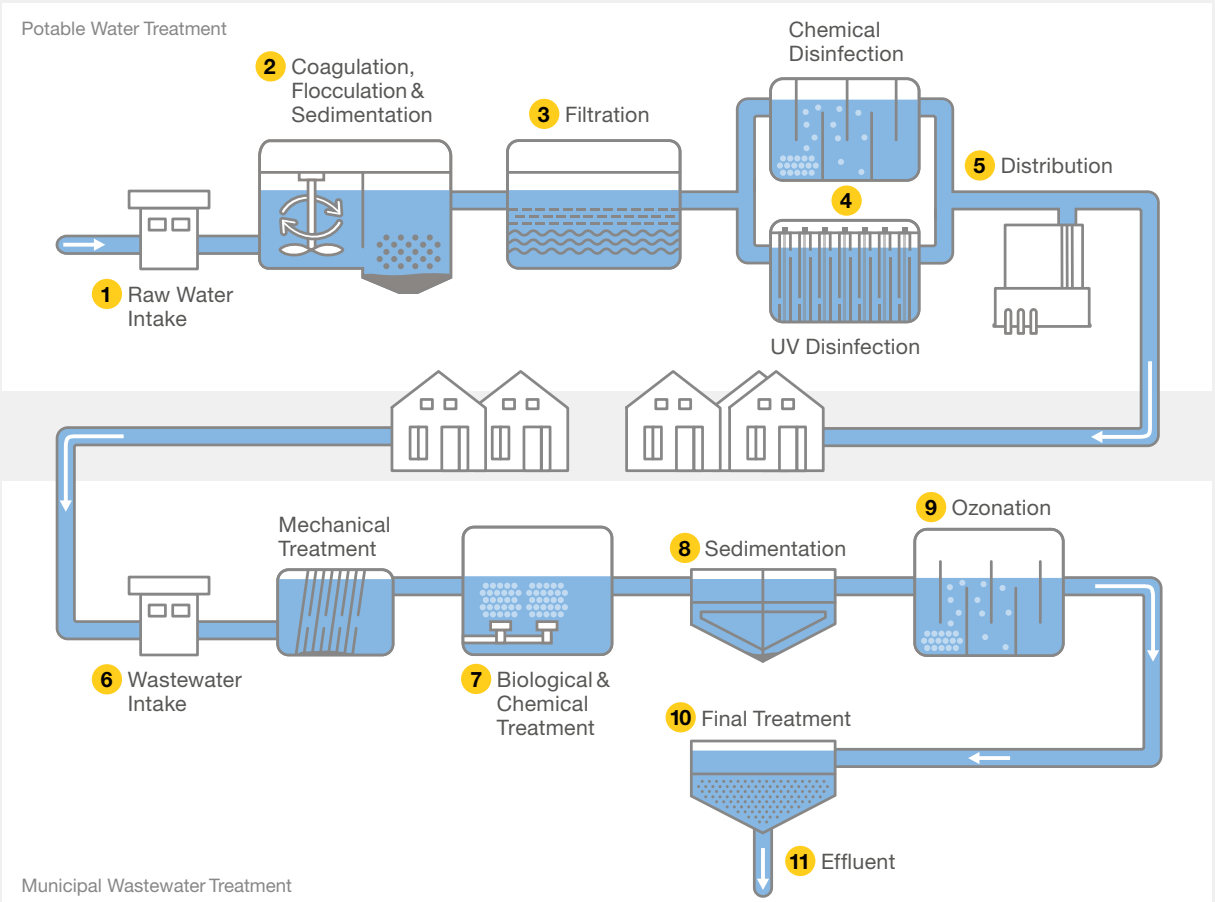
swan
ANALYTICAL INSTRUMENTS

Reliable Online Monitoring of Potable Water and Municipal Wastewater

Possible Locations for Online Monitoring



Parameter	Potable Water Treatment					Municipal Wastewater Treatment					
	1	2	3	4	5	6	7	8	9	10	11
Aluminum	○	○	●	●	●			○		○	○
Ammonium	○	○	●	●	●			○		○	○
Chloride	○	○	●	●	●			○		○	○
Chlorine	○	○	●	●	●			○		●	●
Color	○	○	●	●	●			○		○	○
Conductivity (specific)	●	●	●	●	●	○	○	●	●	●	●
Dissolved Oxygen	●	●	●	●	●	●	●	●	●	●	●
Fluoride	○	○	●	●	●			○		○	○
Iron	○	○	●	●	●			○		○	○
Manganese	○	○	●	●	●			○		○	○
Nitrate	○			○	○						
Organics	●	●	●	●	●			○	○	●	●
Oxidation/COD	○	○	●	●	●			○		●	●
Ozone/Zero Ozone	○	○	●	●	●			○	○	●	●
pH	●	●	●	●	●	●	●	●	●	●	●
Phosphate	○	○	●	●	●			○		○	●
Redox Potential	●	●	●	●	●	●	●	●	●	●	●
Total Alkalinity	○	○	●	●	●			○		○	○
Total Hardness	○	○	●	●	●			○		○	○
Total Organic Carbon (TOC)	○	○	●	●	●			○		○	○
Turbidity	●	●	●	●	●			○		●	●
UV Transmission/SAC254	●	●	●	●	●			○	○	●	●

○ = Application of instrument may be restricted by water quality or need further sample conditioning (e.g. filtration)

Ammonium, Nitrate and Fluoride

AMI ISE Universal

Ion sensitive determination of ammonium, nitrate or fluoride

- Low operating costs due to reagent free operation
- Integrated sensor cleaning for minimal maintenance
- Flexibility to monitor additional parameters with ion sensitive electrodes

Ammonium
0-1000 ppm
Nitrate
0-1000 ppm
Fluoride
0-1000 ppm

Conductivity (Specific)

AMI Solicon4

Measuring of specific conductivity and TDS to be used in all water treatment steps

- Insensitive to fouling due to 4-electrodes principle
- Measurement of salinity as NaCl possible
- Easy calibration without sensor removal
- 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

Chlorine

AMI Codes-II

Photometric measurement for disinfectant concentrations according to AWWA 4500-Cl G/EN ISO 7393-2

- Insensitive to cross-measurements, chemicals and ion interferences
- Automatic zero-value calibration prior to each measurement for high accuracy and reproducibility
- 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

AMI Codes-II CC

Differentiated photometric determination of chlorine according to AWWA 4500-Cl G/EN ISO 7393-2

- Simultaneous analysis of free chlorine, different chloramine species and total chlorine
- Freely adjustable measuring intervals for optimized use of reagents
- Fast and easy to use verification with user-friendly solid state standard

Free Chlorine
0-5 ppm
Bound Chlorine
by calculation
Total Chlorine
0-5 ppm
Monochloramine
by calculation
Dichloramine
by calculation

Dissolved Oxygen

SAC254 and Organics, UV Transmission

AMI Codes-II TC

Determination of chlorine based on the DPD colorimetric method (EN ISO 7393-2; APHA 4500-Cl G)

- Simultaneous measurement of total chlorine and calculation of dichloramine
- Continuous, automatic monitoring of main instrument functions (contaminated photometer, sample flow, reagents level)
- Integrated pH measurement with temperature compensation available as option

Total Chlorine
0-5 ppm
Dichloramine
by calculation

AMI Trides

Amperometric measurement and control system for disinfectant concentrations

- Reagent-free – low operating costs with durable, membrane-free sensor design
- Low maintenance, high zero point stability, high longevity with automatic sensor cleaning
- Reliable measurements with integrated monitoring of redox potential and/or pH value (incl. compensation)

Free Chlorine
0-5 ppm
Chlorine Dioxide
0-3 ppm
Ozone
0-1 ppm

AMI Oxysafe

Amperometric measurement of dissolved oxygen

- Simple calibration using ambient air
- Long-term stable measuring system with robust electrode for low-priced operation
- Easy to handle membrane and electrolyte exchange

Dissolved Oxygen
0-20 ppm
Saturation
0-20%

AMI SAC254

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

- Insensitive to fouling of the optical components due to dynamic measurement at multiple path lengths
- Integrated grab sample function
- Correlation to DOC, TOC and other paramaters possible
- Integrated turbidity correction at 550 nm per DIN 38404-3

SAC254
0-300 m^{-1}
UV Transmission
0-100%
DOC, TOC
Concentration ppm

Ozone

AMI Codes-II O_3

Based on the DPD colorimetric method according to DIN 39404-3

- Automatic zero point calibration before each measurement guarantees high reproducibility at low detection limit (1 ppb)
- Simple system function verification with optical filter set
- Reliable results even during long term absence of ozone
- Suitable for verification of zero ozone after ozonation

Ozone
0-500 ppb

pH/Redox Potential

AMI pH-Redox
AMI pH:mV/pH:mV

Potentiometric measurement of pH value and/or redox potential (single or dual channel)

- Easy calibration without sensor disassembling
- Minimized maintenance with integrated sensor cleaning
- Integrated temperature measurement and pH compensation

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

Phosphate

AMI Phosphate-II

Colorimetric measurement principle according to ISO 6878/ APHA 4500-P E

- Based on molybdenum blue (ascorbic acid) colorimetric method
- Automatic zero calibration for a long term stable measurement
- Measurement result expressed as PO_4 or PO_4-P
- Optional automatic cleaning module against biofilm and for high resistivity against fouling

Orthophosphate
0-10 ppm

AMI Phosphate HL

Colorimetric measurement according to APHA 4500-P C

- Based on vanadatemolybdate yellow colorimetric method
- Automatic zero before measurement for reproducible readings
- Selectable measurement interval for low reagent consumption
- Self-diagnostic indicates if the photometer is contaminated
- Verification kit for reliable measurements and optional 2nd sample channel

Orthophosphate
0-50 ppm

Turbidity

AMI Turbiwell

Contact-free turbidity measurement; approved alternative method to US EPA 180.1/ISO 7027

- Heated optics prevent measurement errors and condensation
- Applicable for flocculation control (coagulant dosing)
- Automatic measurement chamber flushing; trouble-free operation without manual intervention
- Fast and easy verification with primary and secondary standard
- Optional deltaT flow meter; optional sample degasser to avoid the formation of interfering bubbles in the sample

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

AMI Turbitrack

Reliable turbidity measurement under process pressure, according to ISO 7027 (EN 27027, DIN 38404)

- Low maintenance because of automatic flushing function for flow cell
- Fast and easy to use verification with secondary standard
- For use under process pressure conditions to avoid bubble formation
- With integrated flow controller for best measurement results

Turbidity
0-100 FNU/NTU

Total Organic Carbon

TOC Evolution VUV

Monitoring of Total Organic Carbon (TOC) in potable water per ISO 8245

- Analysis time 5 to 10 minutes, programmable interval
- Accurate and fast detection of natural organic matter (NOM)
- Determination of chemical oxygen demand (COD) by correlation
- Automatic, electrical zero measurement prior to each measurement cycle
- Automatic cell cleaning
- Option for 2nd sample channel (same range)

Total Organic Carbon
0-2 ppm
0-10 ppm
0-100 ppm

Multiple Parameters

Topaz Instrument series

Single parameter monitor series for countless applications

- Available in several measuring ranges
- Easy to operate: semi-automatic calibration, automatic, electrical zero and automatic cell cleaning
- Low operating costs, minimal reagent consumption, simple and efficient maintenance
- Option for 2, 4 and 6 sample channels (same range) with fully programmable sequences

Aluminum
Ammonium
Chloride
COD
Color
Fluoride
Iron
Manganese
Total Alkalinity
Total Hardness
more on request

Option

Portable Monitoring

Cleaning Module-II

Reliable, accurate measurements ensured by counteracting bio-growth inside the flow cell and photometer

- Individual programmable cleaning interval
- Automatic reagent level monitoring
- Optional module to use conjointly with these monitoring systems:
  - AMI Codes-II
  - AMI Codes-II CC
  - AMI Codes-II TC
  - AMI Phosphate-II
  - AMI Phosphate HL
  - AMI SAC254

Chematest 30 & 35

The reliable, accurate and robust device for photometric measurements with the add-on.

Photometric Measurements
Chlorine (free, total, combined)
0-10 ppm
Chlorine Dioxide
0-19 ppm
Ozone
0-4 ppm
pH Range (with phenol red)
pH 6.5 - 8
Cyanuric Acid
0-100 ppm

All photometric methods are provided with ready-to-use reagents. The instrument performance can be easily verified with prepared standards.

Add-on exclusive for Chematest 35:
Connect external sensors for convenient and swift measurements of pH, ORP and conductivity.

Swansensor pH CT
pH Value
pH 1-13

Swansensor ORP CT
Redox Potential (ORP)
-400 – +1200 mV

Swansensor Shurecon CT
Specific Conductivity
0.00-100 mS/cm

Chematest 42

The unique multiparameter handheld device which covers turbidity measurements as well.

Nephelometric measurement
Turbidity
0-1000 FNU/NTU

The individual factory calibration of every device guarantees a robust and accurate low-rage turbidity measurement. Its design and the cuvette concept allow an easy and time-saving measurement routine.

Photometric measurements
Chlorine (free, total, combined)
0-10 ppm
Chlorine Dioxide
0-19 ppm
Ozone
0-4 ppm
pH Range (with phenol red)
pH 6.5 - 8
Cyanuric Acid
0-100 ppm

All photometric methods are provided with ready-to-use reagents.

The instrument performance for photometric and nephelometric measurements can be easily verified with stable standards.

Connect external pH, ORP and conductivity sensors.

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

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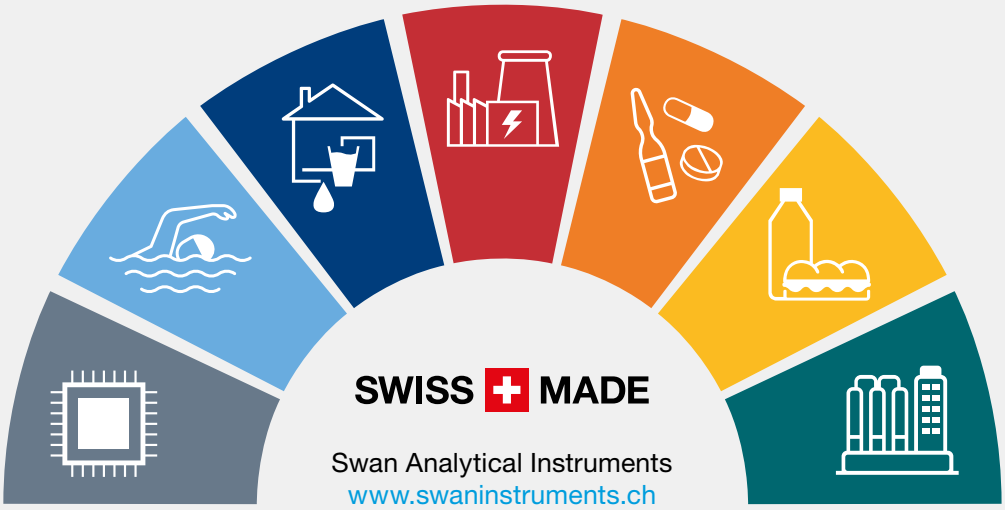
ANALYTICAL INSTRUMENTS

- Swan Headquarters
- Swan Subsidiaries
- Distributors



Swan Analytical Instruments
www.swaninstruments.ch