WATER ANALYSIS OVERVIEW

Smart, high-performing solutions
for the complete water cycle



ENGINEERED
TO OUTRUN

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CONTINUOUS WATER ANALYSIS

Water quality affects everything from industrial equipment to natural resources. ABB's water analysis and control solutions help utilities and plants improve efficiency, reduce costs and meet regulations.

With over 100 years of experience and a legacy of innovation, we bring trusted technologies and deep expertise to help you manage water more sustainably, with precision and reliability built for real-world operations.

CWA portfolio overview



COLORIMETRIC AND ISE ANALYZERS

Our Aztec™ and Navigator™ series of analyzers measure various parameters including aluminum, ammonia, color, flouride, hydrazine, iron, manganese, phosphate, silica and sodium.



ULTRAVIOLET AND VISIBLE LIGHT ANALYZERS

The UviTec™ family delivers fast, accurate measurement of BOD, COD, color, nitrate, nitrite, permanganate, TOC, DOC, UVT and UV254 in seconds.



SMART TRANSMITTERS

With innovative features like EZLink™ and My Measurement Assistant, our universal transmitter platforms simplify water quality measurement, access and servicing.



SENSORS AND PROBES

A comprehensive portfolio of sensors for measuring chlorine, conductivity, dissolved oxygen, dissolved organics, pH/ORP and turbidity .

"We needed a trusted partner that had the technical expertise and could deliver and commission safe, reliable, quality fluoride analyzers that would allow us to meet our legal requirements."

– Sheila Brown, Senior Commissioning Specialist, Instrumentation and Control, Watercare

AZTEC™ SERIES

Colorimetric and ISE analyzers for potable water and wastewater

The Aztec 600 analyzers from ABB are a range of compact, yet reliable, online ion-selective (ISE) and colorimetric analyzers designed for monitoring the key parameters in water treatment. They combine Aztec's unique fluid handling system with the latest electronics platform (featuring intuitive menu-driven software), to create a range of analyzers that provide accurate, reliable measurements, that are simple-to-operate and maintain.

KEY FEATURES

- Colorimetric measurement – LED & photodetector cell
- Single piston pump fluid handling (no moving valves)
- Automatic 2-point calibration with standard solutions
- Up to 3 sample streams per analyzer
- Self-cleaning measurement cell – no manual cleaning
- Automatic background color & turbidity compensation
- Intuitive menu-driven color graphical display
- Data logging, process trending & full audit trail
- Secure data archiving to SD card
- 4–20 mA outputs + digital comms (PROFIBUS)



Learn more:

PRODUCT OFFERING

Aztec™ 600 range is available using either Colorimetric or ISE technology to cover a wide range of applications:

Model	Family	Parameter	Method	Range	Key Application
AAM631	**Aztec 600**	Ammonia	Ion-Selective (ISE)	0.05-1,000 ppm	Potable water (river intake, chloramination) / wastewater (final effluent)
AFM631	**Aztec 600**	Fluoride	Ion-Selective (ISE)	0.1-100 ppm	Fluoridation dosing
AW631	**Aztec 600**	Aluminium	Colorimetric	0-1.5 ppm	Potable water (coagulation) / wastewater (final effluent)
AW632	**Aztec 600**	Ammonia	Colorimetric	0-3 ppm	Potable water (river intake, chloramination) / wastewater (final effluent)
AW633	**Aztec 600**	Iron	Colorimetric	0-5 ppm	Potable water (groundwater, coagulation) / wastewater (final effluent)
AW634/35	**Aztec 600**	Manganese	Colorimetric	0.02-10 ppm	Potable water (groundwater, final water)
AW636	**Aztec 600**	Phosphate	Colorimetric	0.05-50 ppm	Potable water (Plumbosolvancy) / wastewater (final effluent)
AW637	**Aztec 600**	Color	Colorimetric	0–500 Hazen	Potable water (Coagulation)

NAVIGATOR SERIES

High-purity water - power cycle and semiconductor chemistry analyzers

The Navigator range includes two complementary model ranges, the Navigator 500 and Navigator 600, that are both engineered for demanding Ultra Pure Water (UPW) applications as used in the Power (water-steam cycle) and Semiconductor (water quality) industries. Featuring a modular transmitter/sensor architecture, up to four wet-sections can share a single transmitter, delivering a compact, cost-effective multi-parameter solution.

KEY FEATURES

Navigator 500 Electrochemical & Ion-selective analyzers

- Up to 4 wet-sections per transmitter; mix & match parameters
- Response time <2 min (90% step change)
- Automatic calibration; no reagents for dissolved oxygen

Navigator 600 Colorimetric Analyzers

- Single-stream & multi-stream configurations (up to 8 streams)
- Up to 90% lower reagent consumption vs. competing analyzers
- Advanced colorimetric method with automatic zero & span calibration
- Applications: demineralization plants, power boilers, process water loops



Learn more:

PRODUCT OFFERING

Navigator range is available using electrochemical, ion-selective, or colorimetric technology to cover a wide range of high-purity water applications:

Model	Family	Parameter	Method	Range	Key Application
ADS550/1	**Navigator 500**	Dissolved O_2	Electrochemical	0-20,000ppb	Boiler feed-water, de-aerator
ASO550	**Navigator 500**	Sodium	Ion-Selective (ISE)	0.01-10,000 ppb	Demineralization, steam purity
AHM550	**Navigator 500**	Hydrazine	Electrochemical	0-1,000 ppb	Boiler feedwater
AW641	**Navigator 600**	Silica	Colorimetric	0-5,000 ppb	Demineralization, steam purity, boiler drum
AW642	**Navigator 600**	Phosphate	Colorimetric	0-15,000 ppp	Boiler drum

UVITEC™ SERIES

Real-time, reagent-free UV/Vis analysis for water and wastewater

The UviTec™ family is ABB's advanced platform for continuous water quality monitoring. Based on UV/VIS spectrophotometry they deliver laboratory-quality results directly in the field, process plant, or network in real time. No reagents, no sample preparation, no waiting for lab results. From portable field meters to submersible sensors and rack-mounted analyzers, UviTec™ delivers results fast and is supported by ABB's Liquid Ai™ software suite.

KEY FEATURES

- **UviTec™ Analyzers**
  Online cabinet analyzers with built-in sensor & display for continuous process monitoring. Plug-and-play with flexible I/O and remote access.
- **UviTec™ Sensors & Probes**
  Direct-immersion and bypass sensors for in-situ measurement. Includes UV254, BOD/COD, nitrate, nitrite and color.
- **UviTec™ Field Meters**
  Portable handheld device delivering accurate BOD/COD results in 5 seconds. Replaces slow, costly lab-based BOD/COD, DOC/TOC, UVT and UV254 testing.
- **Liquid Ai™ Platform**
  Cloud-connected data analytics & software platform. Provides real-time dashboards, anomaly detection, predictive insights, and remote calibration.



Learn more:

PRODUCT OFFERING

A single UviTec™ platform can simultaneously monitor all of the following parameters — often with one optical measurement:

Parameter	Full Name	Key application
BOD	Biochemical Oxygen Demand	Organic pollution load; key regulatory compliance metric
COD	Chemical Oxygen Demand	Total oxidizable matter; treatment process control
TOC	Total Organic Carbon	Organic contamination in drinking & process water
DOC	Dissolved Organic Carbon	Soluble organic fraction; disinfection by-product precursor
Color	True Color / Apparent Color	Aesthetic quality; regulatory limit in potable water
NO_3-	Nitrate	Eutrophication risk; drinking water compliance
NO_2-	Nitrite	Optimizes service intervals in boilers, chillers, and aquaculture applications
MnO_4	Permanganate	Optimize chemical dosing, prevent over-feeding, and maintain compliance with drinking water quality standards
UVT	UV Transmittance (%)	Disinfection (UV dose) optimization; coagulation control
UV254	UV Absorbance at 254 nm	Surrogate for NOM, DBP precursors, NDMA, micro-pollutants

CHLOROSTAR™ SENSORS

Accurate and reliable chlorine measurement solutions

ABB's ChloroStar™ family of sensors, transmitters, and accessories enables users to install, operate, and maintain chlorine measurement systems with confidence. Designed for water treatment, environmental monitoring, and industrial process control applications, ChloroStar™ delivers precise, real-time chlorine analysis.

KEY FEATURES

- **Easy Installation & Integration**
  Panel systems for seamless integration
- **Accurate and reliable**
  Advanced 3-electrode amperometric technology for reduced measurement drift
- **Wide Measurement Range**
  0 to 20 ppm (mg/L) free and total chlorine detection
- **Reagentless operation**
  Measure free or total chlorine without additional reagents and pumps
- **Low Maintenance**
  Reduced downtime with durable electrode design
- **Ultra-low flow requirements**
  Operate down to 0.1L/hr reducing sample waste
- **Smart Connectivity**
  Easy control system integration



Learn more:

PRODUCT OFFERING

The ChloroStar™ family includes sensor and panel solutions designed to meet various application requirements:

Product	Description
ACL420 ChloroStar™ Digital Sensor	Compact chlorine sensor with built-in diagnostics and data logging capabilities
ACL421 ChloroStar™ Digital Sensor Panel	Integrated panel system that combines sensor and transmitter for complete chlorine analysis
ACL410 ChloroStar™ Cell	Measure free and total chlorine levels in foul-prone applications
ACL411 ChloroStar™ Cell Panel	Integrated panel system that combines cell and transmitter for complete chlorine analysis
ChloroStar™ InFlow Multi-cell	Modular flow cell for use with 3/4" or PG13.5 sensors
EZTest™ 100	Portable handheld device for measuring chlorine

KEY APPLICATIONS

Municipal Water Treatment – Free and total chlorine monitoring
Wastewater Treatment – Disinfection control and compliance monitoring
Industrial Process Control – Chlorine usage optimization
Environmental Monitoring – Water quality assessment
Swimming Pool & Recreation – Automated chlorine level management
Food & Beverage Processing – Water purity verification

CONDUCTIVITY SENSORS

Precise measurement solutions for every application

ABB's rugged range of conductivity sensors provides critical measurement in the most demanding processes. Built to the highest quality standards, they provide accurate and reliable measurement in a range of applications from ultra-pure water to high coating aggressive chemical solutions. With specially designed versions for flow-through, inline and high-pressure insertion we have the right sensor for your application.

KEY FEATURES

- **2-Electrode Contacting Cells**
  High accuracy for trace measurements with integrated temperature sensors for rapid temperature response and compensation.
- **4-Electrode Contacting Cells**
  Auto-compensating technology, alarm for cleaning requirement, high-level measurement capability with industrial-grade construction.
- **Electrodeless Toroidal Sensors**
  Non-contact measurement, immunity to polarization, resistant to oily fouling and extended service life.



Learn more:

PRODUCT OFFERING

A wide range of conductivity sensors to cover a variety of industries. Select the sensor with the features you need:

Type	Application	Sensor	Electrode Material	Mounting style
2-electrode conductivity sensors	Low conductivity	AC221*	Stainless Steel	Threaded insertion or flow-cell
		AC211	Graphite	Threaded insertion
		AC212	Graphite	Flow-through
		AC213	Graphite	Dip-mount
		2085*	Stainless Steel	Retractable
		TB254	Stainless Steel	Threaded, twistlock or dip-mount
		TB264	Stainless Steel	Threaded insertion or flow-cell
		TB26	Stainless Steel	Threaded, dip-mount or retractable
		TB27	Stainless Steel	Retractable
4-electrode conductivity sensors	High conductivity or high fouling	TB451	Stainless Steel	Tri-clamp
		TB457	Stainless Steel	Tri-clamp
		TB461	Stainless Steel	Threaded, dip-mount or retractable
		TB465	Stainless Steel	Threaded, dip-mount or retractable
		TB468	Hastelloy	Threaded insertion or retractable
		TB454	Stainless Steel	Threaded, twistlock or dip-mount
		TB464	Stainless Steel	Flow-cell
		TB47	Stainless Steel	Retractable
Toroidal non-contacting conductivity sensor	High fouling & corrosive	TB404	N/A (PEEK Cladded)	Threaded, dip-mount or retractable

*UPW <1uS/cm

DISSOLVED OXYGEN SENSORS

ABB has been providing critical dissolved oxygen measurement in ultrapure water through to high-fouling wastewaters for over 60 years.

ABB's range of online dissolved oxygen (DO) sensors allows our customers to have much tighter control over DO concentrations, which can lead to significant cost savings through reduction in energy requirements, chemical dosing needs and environmental compliance. Monitoring and controlling DO levels is critical in both municipal and industrial water treatment. Our range of optical and electrochemical DO sensors are designed for use across a range of applications from ppb measurement in ultrapure water to high-fouling wastewaters.

KEY FEATURES

- **ADS420 –** Sensor features drift-free optical technology, eliminating routine calibration and dramatically reducing operational costs. Featuring ABB's EZLink™ technology, it is ideal for wastewater aeration control and industrial processes.

- **AeroStar™ Ultra (ADS560) and Ultra Trace (ADS565) –** Ultra-low level DO sensor is designed for environments where dissolved oxygen causes corrosion in ultrapure water, with stable measurement down to 0.8 ppb (Trace version). With up to 70% less maintenance than electrochemical sensors and sensor caps lasting up to 2 years, it is the go-to solution for power plants, semiconductor fabs, and beverage manufacturing.



Learn more:

PRODUCT OFFERING

A wide range of DO sensors to cover a variety of industries. Select the sensor with the features you need:

Product	Description	Applications
ADS420	Submersible sensor for municipal & industrial water and wastewater treatment	Final water quality assurance and process optimization, treatment aeration basin control, effluent compliance monitoring, desalination and water reuse
AeroStar™ Ultra (ADS560)	Low level DO measurement from 4ppb to 25ppm level	Ultrapure water quality control for semiconductor chip fabrication and oxygen control in brewing, carbonation, and bottling processes
AeroStar™ Ultra Trace (ADS565)	Ultra low level DO measurement below 1ppb level	Corrosion prevention in boiler feedwater and steam circuits for power generation applications

PH/ORP SENSORS

Lasts up to 10 times longer in harshest industrial applications

ABB's next generation pH sensors bring together over 70 years of pioneering pH sensor development and application expertise with the latest advanced digital technology and sensor diagnostics. With color-coded designs based on application, EZLink™ plug-and-play technology, and industry-leading sensor life in the harshest environments, these sensors are simple to select, own and operate.

KEY FEATURES

- **Easy to select**
  Color-coded sensors designed to outperform and deliver superior results
- **Connect and measure**
  Digital EZLink™ connectivity for improved commissioning and operation
- **Sensor health check**
  Maximize sensor lifetime, improve measurement confidence with reduced process downtime
- **Enhanced measurement accuracy**
  Close-coupled temperature response for improved response and measurement accuracy
- **Accessories**
  A range of adaptable, durable and reliable mounting accessories are available with safety and ease-of-use in mind



Learn more:

PRODUCT OFFERING

Choice of pH sensors that are designed to be the optimal solution a wide range of applications:

Product	Description	Applications
100 E	Cost-effective pH measurement with universal 12mm design	OEM applications, water, irrigation and aquaculture
100 GP	Highly accurate ¾ inch design with fast response times	Ideal sensor for drinking water, wastewater and environmental monitoring applications
100 ULTRA	Cost-effective sensor for low conductivity applications	Boiler water, demin water, reverse osmosis and steam water analysis
500 PRO	High performance sensor with marine and industrial approvals	Industrial wastewater effluent, scrubbers, dye baths, paper mills, mineral processes and marine
500 X	Heavy industrial sensor with exceptional pressure, temperature, poisoning and plugging resistance	Pulp mills, Oil & Gas, chemical and petrochemical
700 ULTRA	A rechargeable, reservoir-fed sensor with fast response times	Ultra pure water pH accuracy

TURBIDITY SENSORS

Industry-leading water quality monitoring technology

ABB's turbidity analyzer solutions deliver accurate, reliable water quality monitoring for municipal and industrial applications. With over 100 years of innovation, ABB provides comprehensive solutions that drive efficiency, reliability, and sustainability across water treatment processes.

KEY FEATURES

- High-accuracy turbidity and TSS (Total Suspended Solids) measurement
- Wide measurement range from low to high concentrations
- Reliable performance in challenging water environments
- Advanced bubble rejection technology
- Integrated diagnostics and remote monitoring capabilities
- Reduced maintenance with self-cleaning sensors



Learn more:

PRODUCT OFFERING

ABB offers a range of turbidity measurement solutions tailored to different applications and industries:

Product	Application	Industrial wastewater
ATS410 Low Range Turbidity	Potable water, filtration monitoring	0-100 NTU
ATS430 Sensor	Wastewater, industrial processes	0-4000 NTU / 0-100,000 mg/L TSS

KEY APPLICATIONS

- Potable Water Treatment: Ensures drinking water quality and compliance with regulatory standards
- Wastewater Treatment: Monitors suspended solids removal and discharge compliance
- Industrial Water Management: Optimizes cooling water and process water quality
- Desalination Plants: Controls filtration performance in pre-treatment stages
- Pharmaceutical & Food Industry: Maintains product quality and process efficiency

SMART TRANSMITTERS WITH EZLINK™

Versatile designs, maximum usability

ABB's range of smart water transmitters are designed to be the optimal local control and monitoring platform for a wide range of ABB water analysis sensors, for whatever parameters are being measured. The low-power AWT210 offers a reliable and durable transmitter for the measurement and control of pH, ORP or conductivity in hazardous and non-hazardous areas. While the AWT420 Dual-input and popular AWT424 Multi-input four-wire transmitters, offer true flexibility for measuring a wide variety of parameters in a single device, including pH/ORP, conductivity, turbidity, chlorine and dissolved oxygen.

KEY FEATURES

- **Connect and measure digital sensor connection**
  Easily connect and configure the transmitter with any of our digital sensors, offering flexible measurement with minimal set-up time.
- **Factory calibrated**
  Means your transmitter is accurate and ready to go as soon as it is out of the box
- **Automatic sensor recognition and set-up**
  Enables sensors and transmitters to be connected quickly, with no wiring or fine-tuning required
- **Advanced predictive maintenance**
  Advanced self-diagnostics conforming to NAMUR NE 107 provide clear and simple indication of device status
- **Enhanced measurement accuracy**
  Electrical noise interference is minimized, ensuring maximum signal strength for enhanced accuracy



Learn more:

PRODUCT OFFERING

Choice of transmitters that are designed to be the optimal local control and monitoring platform for a wide range of ABB water analysis sensors:

	AWT210	AWT420	AWT424
Transmitter Type	2-wire	4-wire	4-wire
Number of Inputs	1	1 or 2	1, 2, 3, or 4
Measurement Types	Conductivity, pH/ORP	Multi	Multi
Hazardous Area Certification	Intrinsic Safety & Non-incendive	Non-incendive	Non-incendive
Sensor compatibility	All except AeroStar Ultra DO	All except AeroStar Ultra DO	All

DIGITAL & SERVICE OVERVIEWS

AI-driven self help tools and onsite services

MY MEASUREMENT ASSISTANT+

Generative AI-powered self-service app that supports customers in commissioning, maintaining and troubleshooting measurement devices 24/7.

A key feature My Measurement Assistant+ (MMA+) is leveraging the dynamic QR code functionality that is built in to the AWT420 and AWT424 transmitters. It enables access to health scans and a range of comprehensive support features.



Accessible from any device, it empowers field technicians and engineers to resolve issues quickly, reduce downtime, and enhance operational efficiency. With direct access to local service teams and a user friendly interface, MMA+ ensures you have the expertise and tools you need, right at your fingertips.

Learn more about MMA+:

VISUAL REMOTE SUPPORT

Support when and where you need it utilizing the latest remote support technologies. Empowering industry operators with over the shoulder visual guidance, troubleshooting or remote device assessment for faster resolution

MEASUREMENT CARE

Scalable service agreements, personalized to your needs. Comprehensive support from self-service to full lifecycle management packages to keep your processes moving, all bundled in a single service agreement

SPARE PARTS

Protect your process reliability, ensure optimal performance and extended equipment lifespan, minimizing unplanned downtime and maintaining measurement accuracy with strategic spare parts stocking

Learn more about services:



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ABB Measurement & Analytics
For your local ABB contact, visit:
www.abb.com/contacts

abb.com/wateranalysis



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IRB/CWA-OVERVIEW-EN REV. A 06.2026