

Alert on Water Quality

Plug and Analyze Systems





Alert on Water Quality

Monitoring and control of water quality is of paramount importance. In the water cycle we use surface or groundwater for potable water or industrial purposes like boiler feed, cooling water or make up water for process applications. Stricter controls on pollution will protect the environment but require increased levels of monitoring and analysis. Alert Analyzers are delivered ready to analyze and monitor all of the common ion concentrations in water 24 hours a day, every day.

Plug and Analyze

Alert on-line Analyzers come complete, preconfigured and programmed for their specific applications. Just connect the power, sample and reagent lines and within less than two hours the units are up and running. The Alerts are also easy to maintain because of the applied measuring techniques and materials. Reagent usage is low with typically less than 2.5 liters per month at 100 analyses per day. Powerful conditional actions can be performed in the case of unusual analysis results; no value, out of limit or range or unstable values can be used to prompt diagnosis, cleaning, calibration or change of analysis frequency.

Optional reagent level, sample present and other I/O signals for sample preconditioning are available for further automation of the system.



Alert Ion Analyzer

The Alert Ion Analyzer uses the unique Dynamic Standard Addition method which has been developed by Applikon to improve the accuracy and reliability of ion selective electrodes (ISE's).

An amount of buffer solution is added to a precisely delivered quantity of sample in the measurement cell to create the right medium for the measurement.

Based on an initial reading of the ISE the Alert will calculate and dispense an optimal volume of standard solution.

The Alert will then take the second reading and calculate the correct ion concentration.

In this way each analysis is validated and unaffected by electrode drift or other compounds in the sample.

- *robust measurement at low drift*
- *less affected by fouling*
- *validation of ISE performance*
- *large measuring range*



Alert Colorimeter

The analysis is made by 'Differential Absorbance Colorimetry' in the Applikon stirred cuvette colorimeter. This colorimeter uses long lifetime LED's and color filters and has a high sensitivity because of its long light path and LED intensity control.

The Alert Colorimeter takes two measurements during an analysis cycle; the first measurement is of the initial color of the sample and the second of the developed color after reagents have been added and the reaction has reached equilibrium. From this differential measurement and previously stored calibration data, the concentration is calculated. This differential technique compensates for fouling of the cell and sample color.

- *robust measurement*
- *automatic validation of the measurement*
- *changes by fouling are compensated*
- *large measuring range*

Alert Ion Analyzer

- Ammonia ✓
- Calcium ✓
- Chloride ✓
- Fluoride ✓
- Nitrate ✓
- Potassium ✓
- Sodium ✓



Alert Colorimeter

- Aluminium ✓
- Ammonia ✓
- Chlorine ✓
- Chromium ✓
- Copper ✓
- Cyanide ✓
- Hydrazine ✓
- Iron ✓
- Manganese ✓
- Nickel ✓
- Nitrate ✓
- Nitrite ✓
- Phenol ✓
- Phosphate ✓
- Silica ✓
- Zinc ✓



Alert Applications

Several applications for the Alert have been developed and validated, and are listed as numbers in the application matrix below. Information about these applications is available as Application Data Sheets (ADS) from the distributor in your country. The Alert Ion Analyzer is set up for measurements in ppm's and % and the Alert Colorimeter for ppb and ppm ranges.



■ Alert Ion Analyzer ■ Alert Colorimeter

	Drinking Water		Surface Water		Industrial Waste		Municipal Waste		Cooling Water Boiler Feed		Power Utility		High Purity Water	
Aluminium	1255		1255		1255									
Ammonia	1308	1312 1314	1308	1312 1314	1308		1308		1312	1314				
Calcium	1307		1307		1307				1307					
Chloride	1309		1309		1309				1309					
Chlorine, Free	1687		1687		1687		1687		1687					
Chlorine, Total	1264		1264		1264		1264		1264					
Chromium			1266		1266									
Copper	1500				1500				1500					
Cyanide	1504		1504		1504		1504							
Fluoride	1297		1297		1297									
Hydrazine									1501		1501			
Iron	1279	1705	1279		1279				1279					
Manganese	1502													
Nickel					1503				1503					
Nitrate	1310	1313	1310	1313	1310	1313	1310	1313						
Nitrite	1263		1263		1263		1263							
Phenol					1267									
Phosphate			1268	1298	1268	1298	1268	1298	1268	1298	1268	1298		
Potassium	1276		1276		1276		1276							
Silica									1303	1383	1303	1383	1303	1383
Sodium									1311	1769	1769		1769	
Zinc	1505		1505		1505									

Check our website for the last update of the application matrix.



Specifications

Analysis techniques

Alert Ion Analyzer	Dynamic Standard Addition with Ion Selective Electrodes
Alert Colorimeter	Differential Absorbance Colorimetry

Measurement

Standard deviation	typical 1%
Repeatability	typical $\pm 3\%$
Inaccuracy	typical $\pm 5\%$ (95% confidence level)
Analysis time	approx. 10 minutes

Sampling and sample streams

Sampling	batch wise
Sample frequency	programmable
Sample streams	Ion Analyzer 2 streams + blank Colorimeter 1 stream + standard
Sample volume	approx. 10 ml
Sample temperature	5 - 40 °C / 41 - 104 °F
Sample pressure	0 - 0,5 bar / 0 - 7,2 PSI

Maintenance

Monthly	visual inspection & reagent refill
Yearly	hardware inspection

Connectivity

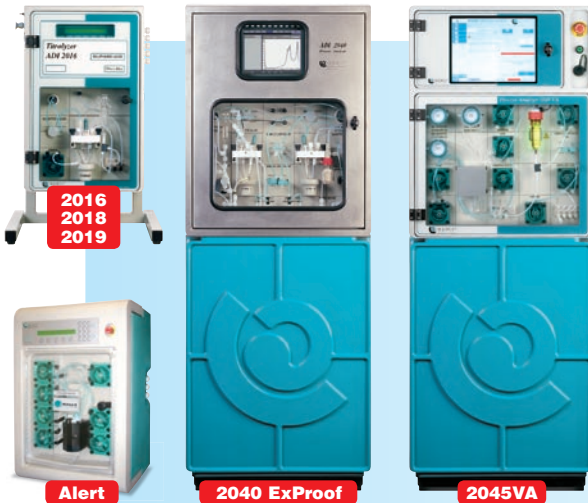
Serial Communication	RS232, RS422
Analog Outputs	2x 0(4) - 20 mA
Digital Input	remote start remote stop remote emergency stop
Digital Output	analyzer running contact system error alarm result value low alarm result value high alarm no sample alarm out of reagent alarm 3x programmable relays

General

Accessibility	passcode protected
Enclosure material	poly propylene
Ingress protection	IP55
Outdoor temperature	5 - 40 °C / 41 - 104 °F
Power supply	100-120 / 200-240V / 50..60Hz
Dimensions	H x W x D 660 x 440 x 300mm 26 x 18 x 12 inch
Weight	approx. 20 kg or 44 lbs

Multi-stream Analyzer

In some cases the Alert Analyzer can be equipped with a sample sequencer. This unit makes it possible to monitor multiple sample streams with one Alert Analyzer. Each individual sample stream is assigned to an analog output module (4-20mA) that transfers the analysis result of the chosen sample stream to a process computer.



About Applikon Analytical

Applikon Analytical has been developing, manufacturing and supplying on-line analytical systems using electrochemical measurements for over 25 years. Thousands of Applikon Analyzers are in use every day controlling the world's most demanding processes and protecting some of the most sensitive environments. Applikon Analytical systems are available using titration, colorimetric analysis, ion selective electrodes or more complex electrochemical analysis techniques such as voltammetry and ion chromatography. The modular system makes it possible to meet the needs for each customer or application. Applikon Analytical has customers in environmental, water, power, electronics, petro/chemical, metal, galvanic, mining, pulp and paper, textile, food, beverage, pharmaceutical and biotechnology industries. Read more on www.applikon-analyzers.com

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