

Automation of pH, Conductivity and Alkalinity with the SP50 Robotic Analyzer



Alkalinity, Conductivity (EC) and pH are commonly analyzed in drinking water and used for the interpretation and control of water treatment processes. The availability and solubility of nutrients and elements are influenced by the pH, whereas the conductivity is used to determine the mineralization of the sample. Alkalinity (carbonate-bicarbonate titration) is related to the buffering capacity of the sample.

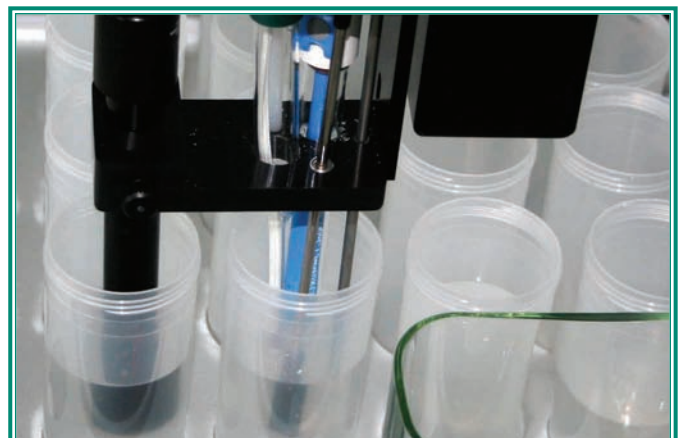
The pH – EC – Alkalinity combination is also analyzed in rain water and irrigation water, to provide the information to establish a nutrition program for plants and to control their growth.

Skalar has automated the simultaneous measurement of these parameters with the SP50 robotic analyzer. In its standard configuration a total number of 84 samples can be analyzed per batch, divided into three racks of 28 samples. Each beaker contains up to 100 ml of sample. By customizing the sample racks, specific beakers of different dimensions can be integrated, allowing the laboratory to use their own standard beakers.

The operation of the SP50 Robotic analyzer is based upon the well proven Skalar Robotic XYZ mechanism.

The SP50 analyzer for pH, EC and Alkalinity carries two separate probes, 1 for EC and 1 for pH/alkalinity. To avoid contamination of the sample, first the EC is analyzed, separated from the pH measurement. After the EC analysis of the sample, the second probe (pH) moves into this sample and simultaneously the EC probe moves to the next sample.

When the pH has been determined, the sample beaker is drained until an exact known amount of sample remains in the sample beaker. The remaining part of the sample is titrated with 0.1 N HCl for the measurement of alkalinity. The titration process is monitored by the pH electrode. When the endpoint of the titration is reached, the alkalinity is calculated by the software.





The SP50 Robotic Analyzer is controlled by the Skalar Robotic Analyzer software. The software has been designed to meet the requirements of all laboratories and allows the operator to select the required application. Regarding the pH/EC/Alkalinity application, the operator can choose whether to analyse all three parameters, a single parameter or a combination of any two of the parameters.

To prevent unauthorized operation and data modification the software requires an access code and password to access. Three different access levels are available. Tables can be created using a spreadsheet, with an optional barcode reader or imported from a LIMS system. During the run, the sample table can be extended by simply adding samples and even racks to the analysis. After the run, the data can be exported to LIMS systems and/or Excel.

The robust SP50 analyzers automates the analysis of large batches of samples and is equipped with automatic start and stop functions to allow reliable overnight unattended operation.

In addition to the automation of pH, EC and Alkalinity, the SP50 can also be used to automate BOD, Color, Turbidity and many more. If you require more information about the pH-EC-Alkalinity automation or the other possibilities of the SP50 analyzer, do not hesitate to contact us.

Features

- Complete 'walk-away' automation of all applications
- User selectable combination of applications eg. pH-EC-Alkalinity or pH-EC
- Customized sample trays
- Addition of samples during the run
- Methodology according to international standard regulations (EPA, ISO, etc)
- Barcode identification
- User definable print-out
- Export to LIMS, Excel, etc.

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