Fully automated analysis of pH, EC, Turbidity and Color directly from the sample collection bottle

Skalar has developed the SP2000 fully automated robotic analyzer for the analysis of pH, EC, Turbidity and Color for a prominent UK water laboratory, which processes approximately 500 water samples each day.

The laboratory uses three identical SP2000 Robotic analyzers to handle the large amount of samples efficiently every day. Each robot holds 6 sample racks each with 27 sample positions. These sample racks are custom made to fit the 250 ml screw cap plastic sample collection bottles as used by the laboratory. Skalar developed a special de-capping mechanism for unscrewing and screwing the caps. Integrating this level of automation eliminates time-consuming manual sample handling steps, enabling the laboratory to use the same sample bottles throughout the entire process, from sample collection to sample analysis on the SP2000 robotic platform

Procedure

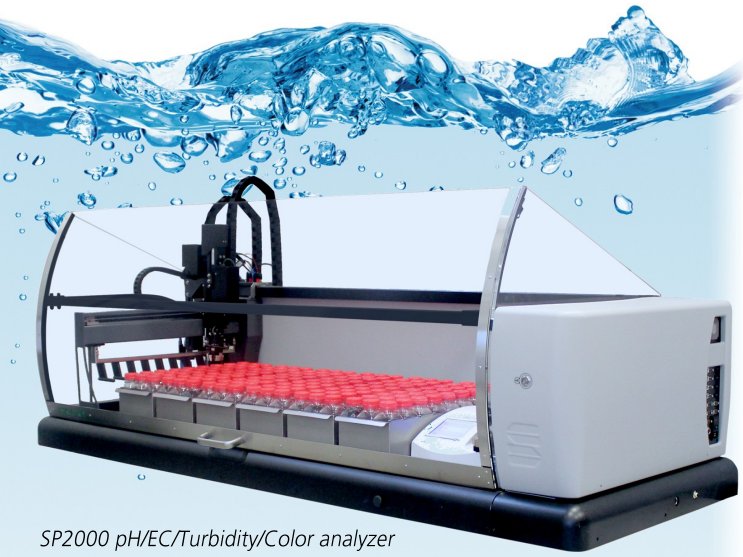
The sample collection bottles are directly loaded onto the analyzer and sample ID's are entered, manually or via barcode scanner. The analyzer is started and the de-capping mechanism moves to de-cap the first sample bottle.

Screw bottle (de)-capping

Probes,Stirrer & Draining needle

To avoid overflowing of the sample bottle, the draining needle enters the sample bottle prior to the probes. A predefined sample volume will be drained from the sample bottle and removed to waste.

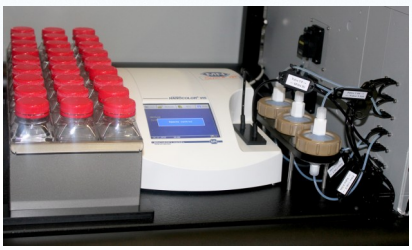
The manipulator holding the probes and stirrer then lowers to a predefined depth and stirring is started. After stirring a predefined amount of sample is drained and pumped through two different sample lines. One line is connected to the Turbidity flow through cell for Turbidity measurement and the other line is connected to an inline filter, for filtration of the sample prior to Color measurement. Conductivity and pH are measured directly in the sample bottle.



SP2000 pH/EC/Turbidity/Color analyzer

The bottle is recapped by the SP2000 and the procedure is repeated until all samples are measured. In between samples the probes, stirrer, draining needle, filters and flow through cells are rinsed.

Results are displayed on the screen and can be printed or exported to a LIMS system and other external software packages. If a repeat measurement is necessary on a sample, this can be scheduled by simply selecting "repeat measurement "in the software.



Filters and flow through cells

Features:

- Complete "walk-away" automation including:
  - Automatic unscrewing and screwing of the caps
  - Bottle overflow control
  - Measurement of pH, EC, Turbidity & Color
  - In-line filtration prior to Color measurement
  - Automatic stirring
  - Automatic rinsing of probe, stirrer, draining needle,filters and flow through cells
  - Result calculation
- Sample collection bottles can be used directly onto the analyzer
- Compatible with current models of meter & probes
- Extension with the following measurements possible Alkalinity, Acidity, Hardness, Fluoride, Ammonium, etc.

Skalar

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