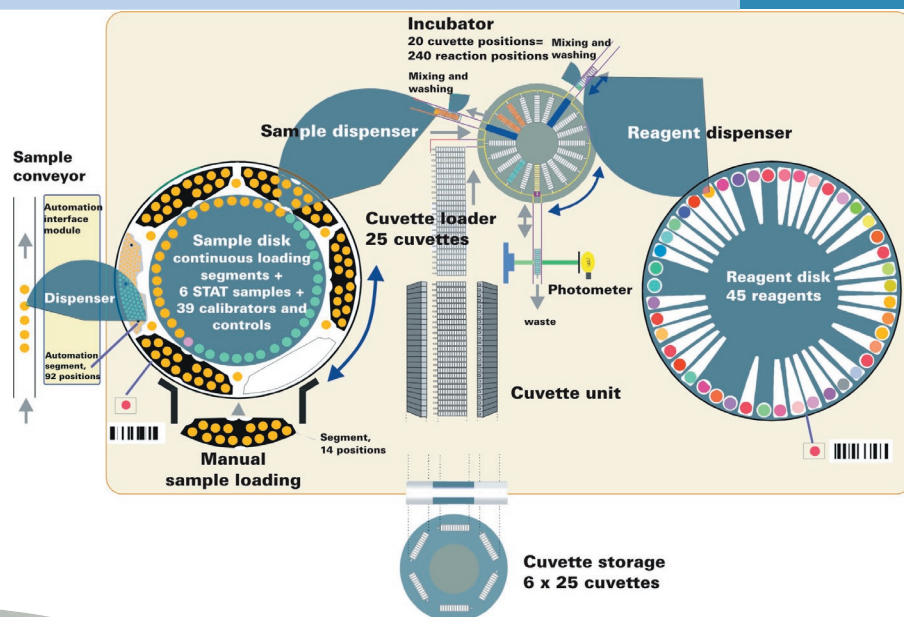


Aquakem 600

Aquakem 600 is a discrete, selective photometric analyzer capable either for random access or batch analysis in water and environmental applications.

System routine chemistries are programmed into the analyzer based on methodologies recommended by the standard methods in water and wastewater examination in many countries, e.g. those published in the U.K Blue Book. However all methods are user definable, number of programmable tests can be up to 200. Ranges to suit individual requirements.



Analysis Type

Colorimetric end-point, linear and non-linear reactions, turbidimetric and bichromatic with or without sample blanking.

Analytical Rate

Up to 600 tests/hour. Time to first result is typically 3 to 12 minutes.

Standardization

Blanking against either: (1) Water, (2) Sample, (3) Sample with reagent or water, (4) After up to 4 reagent additions, (5) Before or after up to 4 incubation periods, (6) Bichromatic

Reaction Vessels

Discrete disposable 12-cell cuvette. Continuous access to cuvettes without interrupting test processing. Optical check on cuvettes before use. ON-BOARD CAPACITY: 2100 measurement cells - 175 multicell cuvettes with 12 reaction cells, typically up to 4 hours walk-away time. REACTION END VOLUME: 100-250 µl.

Measurement

Single channel interference filter photometer with beam splitting reference - 11 fixed filters, others available upon request. SPECTRAL RANGE: 340-880 nm. MEASUREMENT TEMPERATURE: 37 °C. TIMING: Chemistry incubation and reaction timings are user definable. REACTION INITIATION: Sample or reagent start. TEST SELECTION: Selection of tests by profile or individually. LIGHT SOURCE: Halogen lamp with linear absorbance range of 0-2.5 A, resolution of 0.001 A and reproducibility of SD ≤0.005 A at 2 A. ERROR CHECKING: Self monitoring for all errors. Status display at all times.

Samples

Continuous access to samples without interrupting test processing. Optional automation interface module.

SAMPLE TYPES: Suitable for clean water, wastewater, saline, process water, effluents and soil/sludge digests.

SAMPLE VOLUMES: Up to 120 µl.

ON-BOARD CAPACITY: 84 routine samples - 6 segments with 14 pos. per segment and 6 pos. for urgent (STAT) samples.

SAMPLE CUPS AND TUBES:

0.5 ml, 2.0 ml and 4.0 ml cups, 5 ml and 7 ml tubes, 10 ml tubes with tailored segments. Bar codes may be used to identify samples in tubes.

SAMPLE IDENTIFICATION: By alpha-numeric, by unique number or by bar code reader.

SAMPLE INFORMATION: Sample information added either by batch or individually. Sample information may be downloaded from laboratory computer directly to analyzer (LIS).

SHORT SAMPLE DETECTION: Sample level detection with id of those with insufficient sample.

Calibration

Calibration interval is user definable. Linear, bias or non-linear calibration, polynomial curve fitting and modification. Method-dependent use of individual calibrators or automatically diluted series from a stock calibrator. Up to 8 calibrators per chemistry. Previous curve comparison and automatic repeat for bias correction available.

ON-BOARD CAPACITY: 20 pos., also possible to load them into segments. Sample plate cooled to prevent evaporation.

Quality Control

Real time QC program with multiple, user-definable Westgard rules. Control frequency is user definable. Out-of-specification control results are flagged. Automatic re-analysis of samples when QC fails after operator authority. QC chart printouts, daily & cumulative reports incl. summaries of SD's, CV's and mean on all controls. Up to 6 levels/ chemistry, memory for 99 different controls.

ON-BOARD CAPACITY: 19 pos., also possible to load them into segments. Sample plate cooled to prevent evaporation.

Dilutions

Automatic sample pre-dilution. Automatic dilution of over-range tests with automatic re-run. Ability to add the value of manual pre-dilution for the result calculation.

AUTOMATIC DILUTION RATIOS:

up to 1+120

MANUAL DILUTION RATIOS:

up to 1+999

Reagents

Continuous access to reagents without interrupting test processing. All reagents are automatically identified using bar code labels. Real time reagent volume status and number of tests that can be performed are clearly displayed. Up to four reagent additions per test possible.

ON-BOARD STORAGE: 45 pos. in the refrigerated reagent disk.

REAGENT VIALS: 10, 20 and 60 ml reagent vials can be used.

REAGENT VOLUMES: 2-250 µl

Sample and Reagent Dispensing

Externally and internally rinsed single probe dispensers equipped with level sensing. Separate dispensers for samples and reagents. Dispensing with precision syringes driven by stepping motors. Mixing in cuvettes by externally rinsed paddle.

SAMPLE CARRY OVER: <1%.

REPRODUCIBILITY: CV less than 2% for sample volumes ≥ 2 µl and for reagent volumes > 5 µl

Distilled Water Consumption


Typically <2 l/h.

On-board storage with no external connections required.

Environmental Conditions

Operating temperature range of 15-32 °C; humidity 40-85% (non condensing).

Regulatory

CONFORMITY WITH:
73/23/EEC Low Voltage Directive
89/336/EEC EMC Directive 

Data Management

Windows® XP workstation with graphical user interface.

Data input using a mouse, by keyboard, by bar code reader connected alongside with the keyboard or by bidirectional communication with a LIS. Different language versions in user interface available.

SAMPLE BARCODES IN USE:

Code 128, Code 39, USS Codabar, Interleaved 2 of 5.

LIS INTERFACE: Full uni and bidirectional communication with the protocol of ASTM 1394-91

HARDWARE INTERFACE: RS-232 or TCP/IP

RESULT REPORTS: Collated by sample, manual entry of off-line results allowing for fully collated result reports, results calculated from both measured and off-line results. Automatic or 'on request' printouts, automatic STAT reporting. Abnormal values and repeats flagged automatically. Possibility for Excel type of reporting for further calculations.

DATA STORAGE: Long term storage of samples with demographics including test and QC results and calibrations.

Dimensions and Weight

Width 170 cm + arm max 80 cm, depth 82 cm, height 120 cm, weight 375 kg.

Power Requirements

100-240 V $\pm 10\%$, 50-60 Hz $\pm 5\%$, 900 W + workstation PC and monitor. Power failure security (battery back-up facility).

Service Agreements

Periodical maintenance agreement or full agreement (incl. periodical and failure service) available.

Ordering codes

984215 Aquakem 600
984216 Aquakem 600 A
984217 Aquakem 600 Cd
984218 Aquakem 600 Cd A

A= Automation interface module
Cd= Cadmium reduction module

NOTE: The information and technical specifications are subject to change without notice.