SIA2000

BURKARD SCIENTIFIC

MULTI-CHANNEL SELECTIVE ION ANALYSER

SIA2000 is a low cost and versatile instrument for a range of applications based on ion selective electrode technology.

Originally designed for the measurement of fluoride in water on a routine basis, this reliable technology has been extended to incorporate applications in clinical, agricultural and industrial sciences. Because of the ease in which a change of method can be substituted and the simplicity of instrument operation, ion selective electrodes offer a flexible alternative to other continuous chemistry techniques both for laboratory use and monitoring stations.

The established methods enable you to measure rapidly over a wide concentration range using the appropriate ion selective electrode and reference electrode. Levels down to ppb are readily achievable. The concentration range should be specified when ordering. Burkard method sheets provide information on flow rates, reagents, sample loop sizes and manifold configurations for standard or specific analyses.

The laboratory based analyser will handle samples up to 40 per hour unattended. The simple construction enables quick interchange of electrode and flowcells. When the method incorporates a flow injection valve, reproducible timing of the loop volume can be accomplished using the Burkard BT2000 loop timer with pencil switch. This is a useful option when only a limited number of samples are being analysed.

SIA2000 is ideal for the laboratory with small sample numbers that arrive on an irregular basis. It is equally effective for continuous analysis in monitoring industrial processes. The design of the SIA2000 system allows the analyser may be purchased as modules to better meet exact user requirements. The add-on potential means that the sampling option or data processor could be acquired later as the work load increases.

The SIA2000 analyser can be fitted with the computer controlled automatic start-up and shut-down. A motorised wash/reagent changeover system ensures that all reagent lines are automatically connected to a water-wash on completion of analysis. The computer returns the valve to reagents for restart. Other computer control options are possible, e.g. reagent level sensing, special functions and interfacing to other instruments.

FEATURES

- 80 or 140 place carousel sample changer (or 300 place XYZ)
- Up to 20 channel pump
- 1 or 2 channel chemistry module
- Plug-in easy change manifolds
- Integral 1 or 2 channel detector (Ion Selective Electrode)
- MicroStream for Windows data handling or Flatbed Recorder

APPLICATIONS

The following are some of the typical uses for SIA:

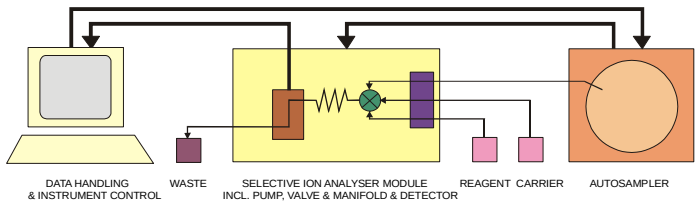
- Ammonia, Nitrate and Nitrite in soil samples
- Sodium and Chloride for clinical methods
- Fluoride in soil and water
- Total and free SO_2 in beer and wines
- pH and conductivity
- Please ask for our Applications List or Data Sheet

BENEFITS

- Compact small foot-print system design
- Fast Analysis
- Manual sample inject 'pencil' switch or sample changer
- Optional comprehensive data processing and system control.
- Optional full automatic control, start-up and close-down functions.
- Optionally supplied with convenience components such as a chemical resistant analyser tray with centralising power distribution and reagent racks

Standard Equipment Includes:

- Choice of autosampler (80 place, 140 place carousel or 300 place XYZ)
- Selective ion analyser
- Reference electrode, Ion selective electrode or combination electrode (to be specified when ordering),
- Data Acquisition (MicroStream for Windows) or flat-bed recorder



A TYPICAL SIA SYSTEM

Sampling options

SIA2000 offers you fully automatic sampling with a choice of carousel or XYZ sample changer. An automated system will present standards and samples in sequence. Automatic dilution of over-range samples is available as an option with the AMD2000. However to alleviate the need for dilution the MicroStream data-processor has an extended concentration range enabling the results to be printed out at up to 10 times the normal calibration standard. When the instrument is not used with a sample changer a low-cost manual injection timer is available to ensure precise loop filling. In addition, each valve has a manual injection button as standard to assist you with setting up of the individual chemistries.

Analysis module

The SIA2000 analysis module comprises a multi-channel fixed or variable speed peristaltic pump, an injection valve (or valves), heating baths fitted with two PTFE coils and a dual flow cell carrying the ion selective and reference electrodes. Individual power sources are provided for heating, valve and interface circuits. Detector output and temperature are continuously displayed. An interface is fitted to enable the electrode response to be amplified, linearised and output to a chart recorder or data handling system. Anionic and Cationic species, both univalent and divalent, may be analysed over a wide concentration range giving a positive-going linear calibration.

The manifold system

Standard components are used to construct the plug-in chemistry manifolds. Ready assembled units are available for the most commonly used methods. Where possible a single manifold can mount two related chemistries. Pump tube and valve connections are conveniently positioned and colour coded for identification. It takes only minutes to make a change of method.

Detectors

The analyser has a self-contained electronic control circuit to process the mV output signals from the electrode. Zero, gain and offset are the three manual controls for set up. Signals from any selected electrode in the range are amplified processed and output directly to the Microstream data processor. A digital display of the mV output assists with zeroing and sensitivity setting. The electrode should be specified when ordering.

Data capture and processing

SIA2000 comes with MicroStream, a powerful multi-tasking system based on Windows® software. MicroStream will speed up your calculating and reporting. Starting with a low-cost package for single-channel use, this system can be expanded to run up to four independent multi-channel analysers. New quality control software checks the accuracy of analysis and all results can be downloaded to other software packages and LIMS. MicroStream is compatible with Windows® based networks.

Standard chemistry methods

Data sheets are available and supplied with every method. Full information on the make-up of standards, preparation of individual chemicals, wash materials, sampler settings and manifold connections is included. Internationally certified methods are used where applicable. Please ask for our applications list or datasheet. Burkard method development is ongoing. If you have a special measurement using ion selective electrode analysis that would benefit from automation call our product development team for advice or assistance on any application.

Servicing

The design of SIA2000 analysers mean that your servicing routine is minimal. Only the regular change of pump tubes by the user is required for routine operation. Annual and bi-annual service contracts will keep your instrument professionally maintained.

On site installation and training in the use of the systems is available. The company maintains a full range of consumables and spares for continuous flow analysis systems. For details on flow injection systems, continuous flow analysers, data handling systems and specialised process control equipment please contact Burkard Scientific. Burkard Scientific reserves the right to change specification without notice.

SIA2000 SPECIFICATIONS

Sample Changer	**80+, S140 or XYZ**
Capacity	Carousel: 8-140 place (sample cups 2ml - 35ml volume), XYZ: 300 place
Sample time	1-999 secs
Wash time	1-999 secs
Sample setting	Keyboard entry
Dimensions	Carousel: 330 x 330 x 200 mm, XYZ: 560 x 480 x 340mm
Supply voltage	110/240V, 50/60Hz (to be specified)
SIA Analysis Module	
Number of valves	Up to 2 with external control from an autosampler
Sample volumes	Variable size loop (minimum 25µl)
Pump capacity	Up to 10 channels
Pump speed	Typically 30-40 RPM
Pump flow rate	0.03-12.0ml/min
Pump tube material	Tygon, PVC, Silicone, Viton
Heating bath	30-100°C variable with temperature display with an accuracy of +/- 0.1°C
Overall size	330 X 250 X 410mm
Power	100/240V, 50/60Hz
Detector	**Colorimeter**
Light sources	Halogen or deuterium (UV)
Flow cells	12mm sq. quartz window (flow through), Burkard non-debubbling flow cells 3, 5, 15 and 50mm path length
Output	Analogue 0-13V with variable gain and damping
Dimensions	410mm x 180mm x 160mm
Supply voltages	110/240V, 50/60Hz (to be specified)
Flat Bed Recorder	
Input sensitivity	0-1, 2, 5, 10, 20, 50, 100, 200, 500mV, 1, 2, 5, 10, 20, 50V. Full scale deflection 250mm
Chart speeds	1, 2, 3, 6, 10, 15, 30, 60cm/min & hr
Dimensions	376 x 425 x 105mm
Supply voltages	240V, 50/60Hz
Data Analyser	**MicroStream for WindowsTM**
Computer	Microsoft Windows™ based PC. (Please call for latest spec.)
Processor	Second analogue processor board (ISA) for peak analysis.
Channels	Up to 16 independent channels. Channels distributed in any combination over systems
Speed	Measures narrow (2-10 seconds) and wide (several minutes) peaks at up to 300 peaks per hour per channel
Resolution	Separate 16 bit ADC on each channel gives 0.025% resolution over normal range with x5 extension for over-range samples
Sampler control	Included as standard, also random access control
System control	Options for automatic start-up and close-down
Results output	Configurable print-out modes and export to spreadsheet or database management software
LIMS interface	Configurable bi-directional link to LIMS for worksheet acquisition and down-loading of results
Internal correction	Full baseline and sensitivity drift correction plus carry-over compensation
Supply voltages	110/240V, 50/60Hz

Manufactured by:

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