

## INDUSTRIAL ON-LINE PROCESS ANALYSER

ALERT 2000 is a chemical analyser for continuous on-line monitoring of industrial processes, water (drinking water, rivers, sea-water, sewage) and effluents. It offers a flexible system that can be supplied for local measurement of a single chemical, or as a much larger network of multi-channel systems for remote monitoring over a wide geographical area. It is a combination of many years' experience in the design and manufacture of laboratory analysers, in automatic data acquisition, computer control and telemetry systems.

The ALERT 2000 Industrial monitor is designed for 'on-line' analysis. Based on proven technologies, ALERT 2000 systems are either single or multi-channel, free standing and self-contained. The analytical unit comprises a multi-port valve precision pump unit, chemistry manifold, a choice of detector and a pre-programmed database providing a range of control options and graphical indicators.

A continuous sample is introduced via a diaphragm pump of suitable flow-rate into a weir. At intervals the sample and calibration standards are pumped at selected flow rates into the chemistry stream, where they may be diluted and mixed with reagents to form a colour complex which is measured at either visible or U.V. wavelengths in a colorimetric detector.

The analogue amplifier signal is received by the Data A-D converter, analysed, and continuously printed out showing sample concentration levels. From the processed data received, if concentration limits are exceeded, corrective measures will be taken by the process pumps to restore acceptable operating conditions.

The ALERT 2000 analyser has mains isolation switches situated inside each cabinet. The chemistry module has a mains ON-OFF switch and additional switches for the chemistry pump and sample pump. The pH meter has a separate power source requiring a low voltage 9V supply.

### FEATURES

- Discrete sampling from an on-line sample source
- Up to 20 channel pump
- 1-2 channel chemistry module
- 1-2 channel detection
- MicroStream for Windows data handling with ReMAC remote system control

### APPLICATIONS

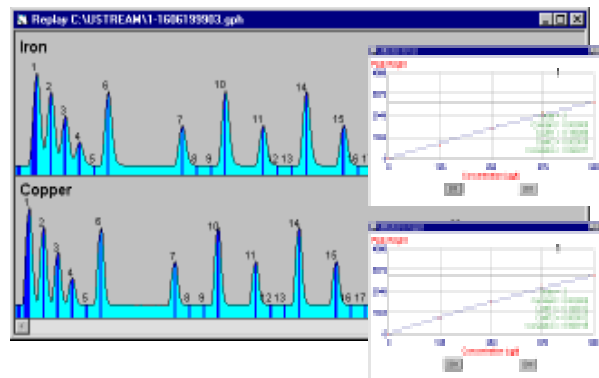
The ALERT 2000 has a wide range of applications in the field of on-line monitoring including

- Waters
- Food and drinks
- Industrial process monitoring
- Pharmaceuticals
- Quality control

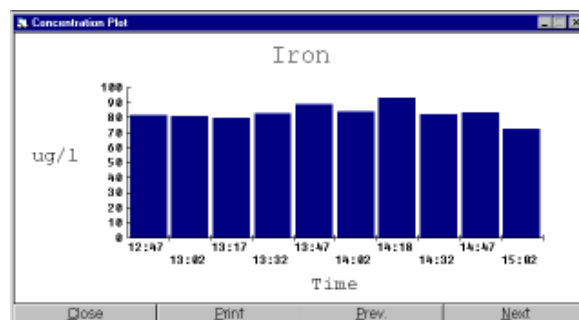
Typical applications include monitoring of waste water, effluents or industrial processes.

### BENEFITS

- Self-diagnostics tests
- Reagent level monitoring
- Automatic leak detection
- Radio links to the telephone network
- Remote access to data logs and audit trails
- Automatic down-load of files to Homebase
- Graphic displays of past and current test levels at remote sites
- Complete control of remote sites for re-setting limits, and enabling and disabling of functions

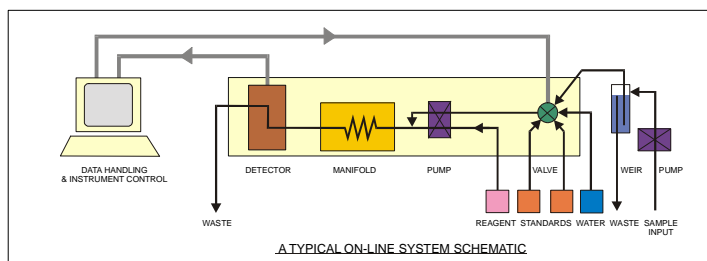


Peak display & calibration graphs for copper and iron



Analysis of a process showing concentration against time

## Standard Equipment:



## System control

At the heart of all ALERT 2000 systems is an industrial PC. This is an all-solid state system consisting of a single board computer (with built-in Flash/ROM disk and watchdog), together with one or more intelligent analogue cards and a mix of other industry standard input/output, control and communication interface cards, depending on the application. Solid state relays and optional opto-isolated digital inputs and outputs allows the computer to operate valves, pumps and power supplied to directly control the analyser, activate alarms and so on. For controlling industrial processes, three-term or PID functions may be added.

## System configuration

Each ALERT 2000 unit is tailored to meet individual requirements. There are three basic configurations:-

1. Monitoring locally with ALERT 2000 having built-in keypad and VDU.
2. Monitoring locally with connection to Homebase computer via RS232 (single ALERT 2000 over distances of up to 100 meters) or RS422/RS485 (multidrop over distances up to 1200 meters).
3. Monitoring over long distance using single or multiple ALERT 2000 systems connected to a Homebase via telephone links.

The above configurations define how ALERT 2000 will communicate with the operator and depends on how close the unit is to the monitoring point. Remote ALERT 2000 systems use our own ReMAC (Remote Monitoring and Control) software for communication with Homebase.

The design of the system depends on the number and type of tests that are being undertaken. Systems are offered for 1, 2, 3 or 4 channels; but more may be added if required. Intermittent operation is another option (to reduce reagent use) in which samples may be analysed at programmable intervals. All systems can be fitted with audible and/or visible alarms and, in the case of remote monitors, automatic dial-in to Homebase.

## System options

Other additions to the system include self-diagnostics tests, reagent level monitoring and leak detection. On the communications side we can offer radio links to the telephone network.

ReMAC allows access into ALERT 2000's data logs and audit trails. Files of data can be down-loaded (automatically if desired) to Homebase, and graphic displays of past and current test levels may be displayed and plotted. ReMAC also allows complete control of the remote site by re-setting limits, and enabling and disabling of functions etc.

## Standard chemistry methods

Data sheets are available and supplied with every method. Full information on the make-up of standards, preparation of individual chemicals and wash materials, sampler settings, optical filters and manifold connections is included. Method development is available for specific applications.

## Servicing

The design of Alert 2000 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.

## Consumables

The company maintains a full range of consumables and spares for ALERT 2000 process analysis systems.

On site installation and training in the use of the systems is available. Contact Burkard for full details. 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.

## ALERT 2000 SPECIFICATIONS

Analytical Unit	Alert 2000
Number of analytical channels	1-6 channels
Chemistry modules	Multi-channel pump, flow injection valve, chemistry manifold and colorimeter
Unattended operation period	Up to 30 days (depending on chemistry)
Reagent reservoirs	Up to 5 litres
Injection Valve	Automatic single or multi-valve system (4 valves standard)
Sample volume	Variable loop (minimum volume 10µl)
Pump capacity	Up to 25 channels
Pump delivery	0.12- 12 ml/min
Pump tubing	PVC, Viton, Tygon, Silicon
Chemistry tray	Accommodates plug in manifolds with reaction coils, dialyse 'T' connectors and components
Mixing coil	PTFE: 0.6mm I.D., coil lengths: 15, 20, 30, 50 & 80cm
Heating bath	Temperature variable 30°C-160°C with proportional control and display
Dimensions	610mm x 43mm x 20mm
Supply voltages	110/240V, 50/60Hz (to be specified)
Overall dimensions	16" x 25" x 47" (40 x 60 x 120 cm)
Net weight	Approx. 50Kg
<b>Detector</b>	<b>Colorimeter</b>
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)
Optional detectors	ISE, Chemiluminescence, Fluorescence
<b>Flat Bed Recorder</b>	
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
<b>Data Analyser</b>	<b>MicroStream for Windows™</b>
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

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