LabLogic

Radio HPLC Detector

With new features carefully designed to meet your needs

...The new Model 4 is 'Measurably Better'

The β-RAM® Model 4 is an all new flow through detector for the sensitive and accurate measurement of beta and soft-gamma emitters. It combines the latest electronics and photo multiplier technology in the smallest radio HPLC detector on the market.

- Smallest Radio Detector available - Vertical or Horizontal - either way, the smallest footprint - (less than 1/3 footprint of previous detectors)
- Easy to use, The β-RAM®'s "Intelligent" Front End means that you select the isotope and the β-RAM® makes the optimum high voltage and discriminator settings
- Integral Scintillation pump, provides accurate control of scintillant flow down to 200 µl per minute
- Highest Sensitivity / Lowest background. The best signal to noise ratio available
- No internal leaks - all liquid fittings on the β-RAM® are external ensuring liquid and electronics never come into contact with each other

β-RAM®

Display

An easy to read, bright display provides real time updates of data in both primary counting channels. This is invaluable for assessing cell condition and current run conditions.

Flow Cells

The β-RAM® cell design is unique. Cell change including disconnecting and reconnecting plumbing, is accomplished in seconds.

The β-RAM® offers the broadest selection of counting cells. Liquid scintillator cells, packed cells with yttrium silicate, calcium fluoride, or scintillating glass, and with various particle sizes. Cerenkov cells with plastic windows, special cells for ^{125}I and positron counting with sodium iodide or BGO windows, are all available.

Liquid cells offered with volumes from 5µl - 2,500µl; packed cells have volumes from 5µl - 600µl and Cerenkov cells are available from 10µl - 500µl.

Automatic Cell Identification

Every β-RAM® Model 4 measurement cell includes a chip on which is recorded;

- Serial number
- Cell type
- Cell volume
- Solid scintillator type and particle size (where applicable)
- Pressure rating
- Flow capacity
- Date of manufacture

Radioactive standards can also be supplied which include a memory chip, containing information on activity of the standard and date of calibration.

These parameters can be automatically detected, recorded and reported on using Laura™3 radio-chromatography software. This unique feature substantially improves regulatory compliance.

External Plumbing

All liquid connections on the β-RAM® are external. This is very important because it keeps liquids and the β-RAM®'s sensitive electronics apart. Keeping all the liquid connections on the outside also makes changes to plumbing and flow cells easier to perform.

Leak Protection Through Overpressure Sensor

The β-RAM® Model 4 can be supplied with an overpressure sensor to protect the system from accidental flow cell damage. When activated the overpressure protection system will divert flow away from the flow cell and our Laura™3 software will detect and record that pressure limits have been exceeded. An LED will illuminate on the front panel of the β-RAM® to alert the user.

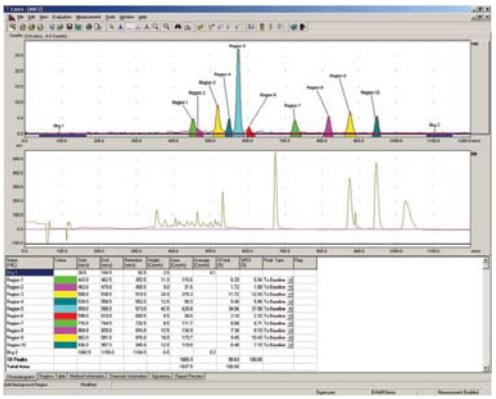
Wide Dynamic Range

The combination of the β-RAM® and Laura™3 software system provides a linear response over 5 orders of magnitude. This benefits the researcher by enabling observation of small peaks in the presence of very large peaks without the need to input a compromising preset range.

New Pump Design

A novel arrangement of pump mechanics (range 200µl/min - 10ml/min) ensures stable operation down to the low flow associated with microbore and HPLC applications. The linear response of the stepper drive ensures that the same pump will accommodate the high flow needed for preparative HPLC.

Laura™3



Laura™3 is the industry standard radio-chromatography software system from LabLogic. Designed to accommodate the latest network platforms Laura™3 offers the researcher the facility to create and edit methods, set up sample runs and view data collection in real time across the network without being confined to the bench-top PC.

Instrument GLP Test

Using Laura™3's unique instrument GLP test function the eight most significant performance parameters are measured and stored. Results can be viewed and printed giving you access to the performance history of the detector and allowing potential performance problems to be detected before they affect your results.

Highest Sensitivity...Lowest Background

Outstanding performance of the new β-RAM® Model 4 derives from the two selected flat-faced 1 1/8" photomultiplier tubes which are now recognised as the best for continuous-flow measurement. These PMs operate at 1000 volts less than the 2" hemispherical-faced PMs used in older designs and have one-ninth the typical dark current. With less glass and lower noise, the natural result is lower crosstalk, hence lower backgrounds. In fact, in every parameter that affects detection - cathode luminous sensitivity, Corning blue sensitivity, anode sensitivity, current amplification - the 1 1/8" PMT outperforms the 2" tube. That combination - lower backgrounds with higher efficiencies - leads to detection sensitivity that has made the β-RAM® the instrument of choice for low level counting.

In practical terms this means that low level runs - especially for the low energy isotopes such as ^{3}H can be measured dynamically instead of collecting fractions.

Micro-Flow and Ultra High Pressure LC

The β-RAM® scintillant pump can accurately operate down to 200µl per minute flow rates which combined with low volume (down to 5µl), low dead volume flow cells, can accommodate the latest micro-flow and ultra high pressure LC techniques. The β-RAM® Model 4, combined with Laura™3, also allows high sampling rates of up to 10 data points per second, making our system ideal for applications where peaks elute quickly.

Support

The β-RAM® Model 4 is supported by LabLogic's dedicated customer care team providing on-site support and service of the highest standard.

Quality Assurance

ISOQAR QUALITY ASSURED FIRM ISO 9001 — UKAS QUALITY MANAGEMENT 026

Certificate No:1535/97

ISOQAR QUALITY ASSURED — ANAB ACCREDITED

Certificate No:1535/97

Quality of service and product is of paramount importance to LabLogic and this is reflected in our systems.

Our continued efforts in this area have resulted in ISO 9001 accreditation for:

Design, development and supply of laboratory information management systems, scientific applications software with ongoing maintenance support, including the supply of instrumentation systems for pharmaceutical, agrochemical and contract research organisations.

Keypad (Optional)
The β-RAM® Model 4 optional keypad provides a simple means of controlling instrument operation for data collection via existing HPLC packages.

Rad Waste Valve (Optional)
Fast-acting three-way valve allows separation of radioactive from non-radioactive waste; trigger level is continuously programmable from 1 to 30k counts per second; 10 second time-out feature ensures complete system washout.

Programmable Splitter (Optional)
Fast-acting three-way valve under microprogram control allows diversion of 10-90% and 100% of the input stream around the β-RAM® to fraction collectors or other external devices.

Adjustable Splitter (Optional)
For mass spectrometry. Mechanical splitter provides highly reproducible fixed split (percentage adjustable by operator) with part of input stream passing to β-RAM® and remainder to mass spectrometer.

Multiport Injector Valve (Optional)
An optional 10 port valve is available for simple, automatic, on-line calibration using radioactive standards. The multi port injector valve allows simple determination of single and dual isotope efficiencies and spillover between counting channels. For gradient quench correction the valve can also be used for periodic injections of standards across the gradient.

Ultra Accurate Splitter Valve (Optional)
The β-RAM® Model 4 splitter valve includes automatic back pressure compensation, allowing users to ensure that an accurate split of eluate flow is achieved, regardless of variations in back-pressure

Tandem Beta/Gamma Detector
For scientists who work with both β emitters and γ emitters, the The β-RAM® Model 4 can be supplied with an additional detector, suitable for all γ radioisotopes, including ^{125}I, ^{131}I, ^{99m}Tc, ^{11}C, ^{18}F.
The optional γ detector unit features a heavily shielded 1.5" x 2" NaI crystal, which provides high detection efficiencies and low backgrounds.

This option allows users to work easily with both β and γ isotopes, without the need for multiple instruments.

Data Output
Serial Host Port - Primary computer link via RS-232 for programming, configuring and controlling the Model 4 hardware; ASCII data input/ output with selectable Baud rate and parity. Serial Terminal Port - Auxiliary link via RS-232 for programming, configuring and control; input/output possibilities include terminal, printer, data logger, network or host computer.

Input/Output
Two analog input channels (13-bit resolution), with baseline offset adjustments. Input can be positive or negative, or upon special request differential, with independent selectable input sensitivities (0-10 mV, 0-100 mV, 0-1 V, 0-10 V). Two positive analog outputs (15-bit resolution); software-selectable full-scale count range with independent voltage ranges (0-10 mV, 0-100 mV, 0-1V, 0-10V).

Remote Signal Lines
Data acquisition Start and Stop; Ready and Run status signals; Relay switch closure during run (waste collection control).

Physical
The β-RAM® Model 4 can be installed horizontally or vertically; in the horizontal configuration the cabinet is 13.7" (348 mm) wide x 6" (152mm) high x 13" (330 mm) deep. In the vertical configuration the cabinet is 6" (152 mm) wide x 13.7" (348mm) high x 13" (330 mm) deep. Weight 30 lbs (13.6kg).

Instrument	Bench Length
β-RAM® Model 4 Vertical	6" (152mm)
β-RAM® Model 2	19" (483mm)
Packard 150/505/515/525	10" (254mm)

β-RAM® Model 4 Specifications

Performance
^{3}H
60% efficiency 4 CPM background
(1000µl Liquid Cell)
^{14}C
90% efficiency, 5CPM background
(1000µl Liquid Cell)

Linearity
Linear response over 5 orders of magnitude

Output
Via RS-232 serial or USB to Laura™3, GLP compliant data collection and analysis system
Via 15-bit resolution analogue output (0-10mV, 0-100mV, 0-1V, 0-10V full scale count range)

Software
Laura™3 GLP Compliant Data Collection, Analysis and Reporting system Windows® 95,98,NT,2000, XP compliant.

Size
Horizontal 348 x 152 x 330 mm
Vertical 152 x 348 x 330 mm

Weight
13.6 kg

Electrical
120/240v, 50/60 Hz, 100 VA
CE Certified

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