

# AR-2000

## Radio-TLC & Imaging Scanner



The AR-2000 radio-TLC Imaging Scanner is the industry 'Gold Standard' in the detection of radiolabeled compounds in TLC plates and also in the purity analysis of [<sup>18</sup>F]FDG.

### Technology

The AR-2000 Imaging Scanner is the industry 'Gold Standard' for analyzing [<sup>18</sup>F]FDG purity, <sup>3</sup>H and <sup>14</sup>C, on TLC plates, gels and blots.

The system provides direct digital counting of all radioisotopes including positron emitters, which guarantees quantitative accuracy and reproducibility for important metabolism experiments and radiochemical purity measurements. The AR-2000 is linear over 4-5 decades of activity, a range 100 – 1,000 times greater than the linear range of X-ray film, providing fast and reliable analyses. The scanner uses a gas-filled proportional counter, which can detect all beta and gamma emitting isotopes. An entire TLC lane can be imaged in less than one minute. Multiple lanes can be analyzed in a single automated run without operator intervention.

### Applications

#### PET / Nuclear Medicine:

Fast, accurate results for in vivo SPECT or PET radiopharmaceutical compounds labeled with <sup>18</sup>F, <sup>11</sup>C, <sup>99m</sup>Tc, <sup>111</sup>In, etc. Radiopharmaceutical quality control and synthesis process control.

#### Pharmaceutical metabolite analysis:

Radioisotope flexibility and manual or automatic peak analysis for low or high activity products, using beta (<sup>3</sup>H, <sup>14</sup>C), gamma or positron-labeled compounds.

#### Radiotracer toxicology studies:

High sensitivity for quantitative measurement of <sup>14</sup>C-labeled organic compounds and agrichemicals.

#### Lipid biosynthesis / Lipid analysis:

1D and 2D analysis of complex lipids, phospholipids and glycolipids by TLC with no cutting, scraping or transfer for fast quantitative results.

#### Radiolabeled reporter gene or enzyme assays:

Simplifies the analysis and improves accuracy for traditional radioisotopic CAT or enzymatic conversion assays using TLC.

### Quantitative biochemical separations and planar samples using radiolabeled compounds:

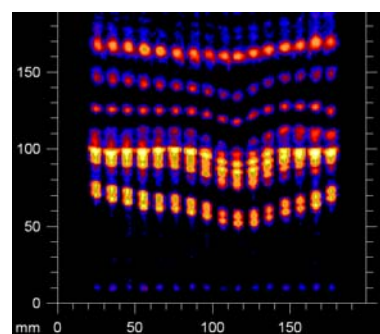
Programmable scanning and quick-change magnetic collimators for resolution and sensitivity optimization.

### WinScan Software

The system includes WinScan Software for instrument control and data analysis results are presented as chromatograms to 2D images. Quantitation of peaks is automatically performed and a report showing the method used, chromatogram and percent of total activity for each peak is provided. WinScan Software provides an easy-to-use interface for AR-2000 operation and radio-chromatographic analysis, including instrument control, method definition and storage, data acquisition, quantitative analysis and reporting functions.

#### Features include:

- Real time data display and on-screen analysis tools, including ROI definition, background subtraction, % total chromatogram activity and Rf values
- Automatic raw data storage for GLP
- Automatic peak finding with user adjustable selection criteria
- User defined printed or exported reports with associated acquisition parameters for quality control
- Plot to scale (1:1) printing option for plate overlays



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## Features and benefits

- Easy-to-use WinScan software
- Fast, automated and reliable runs
- Provides excellent spatial resolution
- Models for 1, 2, or 3 TLC plates
- Minimizes technician exposure and bench time
- 2-dimensional color image generation
- Quantitation of TLC without scraping and counting
- High sensitivity for all radioisotopes including  $^3\text{H}$
- Interchangeable high efficiency and high resolution collimators

## Models

### AR-2000-1

One-Plate TLC Imaging Scanner High performance detector, removable high resolution and high sensitivity collimators, built-in automatic sample changer, with autotab advance for automated scanning of one 20 x 20 cm plate with up to 20 sample lanes. Includes calibration plate, P-10 gas regulator (most areas), and WinScan3 instrument control software. One year license of AR-Calib calibration software included.

### AR-2000-2

Two-Plate TLC Imaging Scanner description as above but designed to handle two 20 x 20 cm plates containing up to 40 sample lanes.

### AR-2000-3

Three-Plate TLC Imaging Scanner description as above but designed to handle three 20 x 20 cm plates containing up to 60 sample lanes.

## Collimators

Different types of high resolution and high sensitivity collimators are available:

- AR-2221: 1 cm Hi-Efficiency Collimator
- AR-2222: 1 cm Hi-Resolution Collimator
- AR-2223: 6 mm Hi-Efficiency Collimator
- AR-2224: 6 mm Hi-Resolution Collimator
- AR-2225: 2 mm Hi-Efficiency Collimator
- AR-2226: 2 mm Hi-Resolution Collimator
- AR-2229: 4 mm Hi-Efficiency Collimator
- AR-2230: 4 mm Hi-Resolution Collimator

## Calibration

- AR-4101: Calibration Plate – 20 x 20 cm plate with 3 standardization lanes (included with instrument)
- AR-CALIB: Calibration Software Site License (1 year included)

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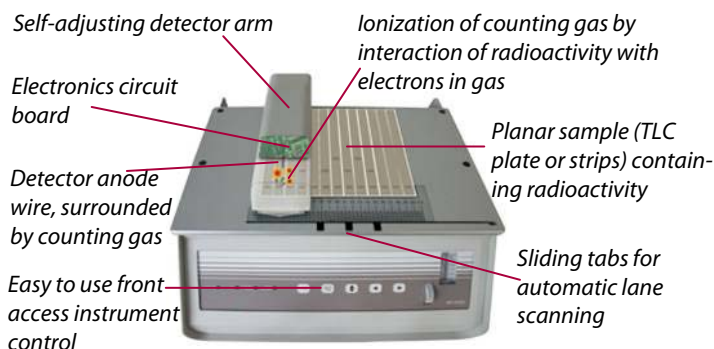
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## Specifications and requirement

Sensitivity (10 min. analysis)	1,000 DPM for $^3\text{H}$ , $^{125}\text{I}$ 100 DPM for $^{14}\text{C}$ , $^{32}\text{P}$ and most other isotopes
Resolution	0.5 – 1 mm for $^3\text{H}$ 1 – 2 mm for $^{14}\text{C}$ 3 mm for $^{32}\text{P}$ and most gamma emitters
Linearity	Calibrated to within 1 % ( $\pm 2$ mm)
Background	Less than 0.15 CPM per mm
Dimensions	1-Plate: 40 x 23 x 48 cm (16 x 9 x 19 in) 2-Plate: 61 x 23 x 48 cm (24 x 9 x 19 in) 3-Plate: 81 x 23 x 48 cm (32 x 9 x 19 in)
Weight	1-Plate: 15 kg (33 lbs) 2-Plate: 18 kg (39 lbs) 3-Plate: 20 kg (45 lbs)
Power:	110/220 V, 50/60 Hz
Gas Supply:	P10 counting gas (90 % Argon, 10 % Methane) regulated to 10 - 20 psi (0.7 – 1.4 bar)
PC Requirements	Windows computer with one 9-pin RS232 or USB port; USB-RS232 adapter provided if necessary

## AR-2000 in details



## WinScan 2D imaging Software (optional)

WinScan 2D (ref: SW-1303) provides graphical image display and analysis for two-dimensional radio-chromatography samples, including:

- Quantitative ROI analysis using on-screen drawing tools with smoothing, background subtraction and 1D chromatogram overlays for selected lane areas
- Programmable stepping and flexible collimator selection for optimal sensitivity, resolution and scanning time
- Printing of images, associated data and acquisition parameters, or exporting of Windows metafiles or tab delimited Excel compatible data tables
- Includes additional 6 mm high efficiency collimator