

MiniScanPRO

GMP compliant radio-TLC scanner and optional MCA

MiniScanPRO is a GMP compliant and versatile, cost-efficient radio-TLC scanner for the reliable detection of radionuclides via TLC, HPLC and optional MCA



Technology

MiniScanPRO is a versatile TLC scanner for the reliable detection of radioactivity for radioisotopes on narrow strips and plates. The system is ideal for routine quality control of ^{68}Ga , ^{18}F (including FDG), $^{99\text{m}}\text{Tc}$ and ^{123}I radiopharmaceuticals and most others. MiniScanPRO has two independent data channels, which can both be used for TLC, for HPLC, or in a mixed mode with one for TLC and one for HPLC. Both channels can be connected to any available detector option. The TLC strip loaded with the sample is placed on a tray which moves under the fixed radiodetectors to record the chromatogram.

The detectors are placed in a bespoke lead shielding. Exchangable tungsten collimators ensure that the best collimation is obtained. Additionally, the channels can be used for radiodetection in combination with all common HPLC systems. Depending on the nuclide, the optimal detector is selected from a variety of detectors. A combination of radiodetectors, both PIN diode and photomultiplier, etc. may be used for measurements of most radionuclides including ^{68}Ga , ^{18}F , ^{125}I , ^{131}I , $^{99\text{m}}\text{Tc}$, ^{90}Y , ^{177}Lu , ^{64}Cu and ^{111}In .

Several scan speeds allow the selected TLC detector to measure a wide range of activities from 10 nCi to 100 μCi (370 Bq - 3.7 MBq) depending on the detector choice. Analog and digital signals are provided for interfacing MiniScanPRO with existing chromatography data systems. The optional RaPET-Lab Software can be used for workflow management, data acquisition and report generation.

For nuclide identification the MiniScanPRO can be upgraded with a Multi Channel Analyzer (MCA) and an appropriate NaI detector of spectroscopy quality to cover a range of 30 - 1500 keV. The detector can be installed on top of the device in the lead shielding.

Applications

- Routine quality control of radiopharmaceuticals containing ^{68}Ga , ^{177}Lu , ^{90}Y , ^{18}F , $^{99\text{m}}\text{Tc}$, ^{123}I and other radionuclides including alpha emitters
- TLC of radiopharmaceuticals labeled with gamma, high energy beta, positron, and alpha emitters for R&D
- In-process TLC analysis of reaction mixtures
- Radio detection for HPLC system
- Radionuclidic identity assay with optional MCA

Features and Benefits

- Easy-to-use system with maximum flexibility and automatic positioning system
- Control via PC
- Compatible with existing chromatography systems utilizing analog output of the MiniScanPRO
- Wide range of detectors available for various applications
- Capable of operating two detectors simultaneously for different applications or in coincidence mode (radio-HPLC mode)
- Variable scan speeds
- Easy system set-up and maintenance
- All parameters, such as threshold (for background, energy window, lower and upper discrimination), high voltage, integration time and plate length are accessible and modifiable
- Automatic determination of nuclide half-life
- RaPET-Lab software plugins available for tray movement, measurement and quality control evaluation

Technical Specifications

Dimensions: 356 x 206 x 519 mm / 14" x 8.1" x 20.4" (W x D x H)

Weight: 19 kg / 41.8 lbs

TLC plate dimensions: Max. 50 x 200 mm (W x D)

Scan area: 25 x 200 mm (W x D)

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RaPET-Lab Workflow Management Software

RaPET-Lab is a comprehensive software package for the automated execution of full processes of measurement, evaluation and quality checks in an analytical laboratory. A workflow consisting of several tasks can be executed in a predetermined order, generating an unchangeable report. This software is very reliable and easy-to-use. It consists of a GMP database ensuring GMP compliant documentation and also adhering to 21 CFR part 11.

Inputs

Up to two PMT-based radiodetectors, up to two diode radiodetectors and two analog channels

Outputs

Up to two user-selectable analog rate signals (ranges of 10 mV, 100 mV, 1 V, 5 V) with 16-bit resolution, up to two TTL pulse outputs

Detectors

The MiniScanPRO uses specially configured photomultiplier based detectors to detect gamma, high energy positron or beta, and alpha emitters at both high and low levels of activity. Background interference is reduced with fully variable energy window settings. The following radio-TLC detectors are available:



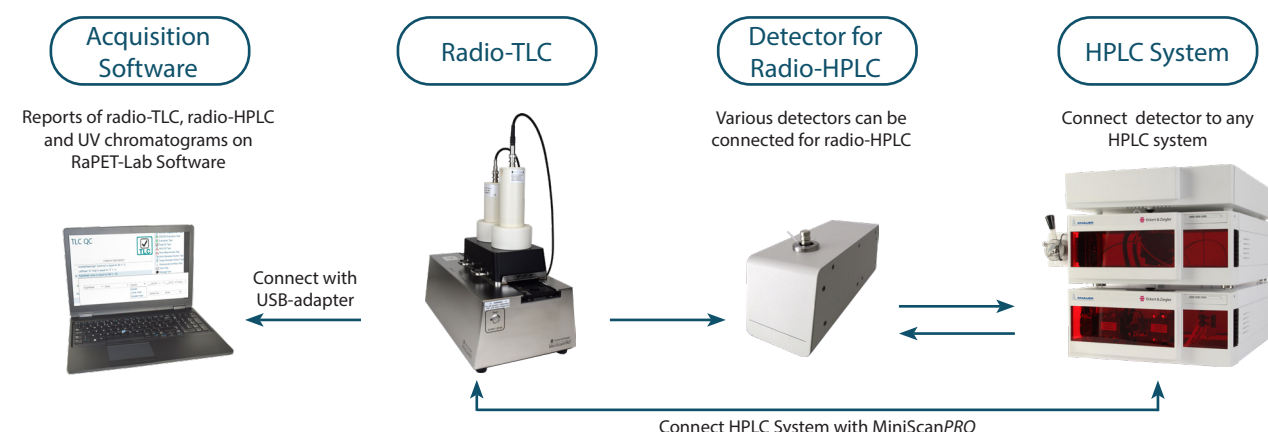
Type	
FC-3100	Nal/PMT based detector is a low energy gamma (10 – 60 keV) detector used primarily for ¹²⁵ I
FC-3200	Nal/PMT based detector is a high energy gamma (60 - 1500 keV) detector used in most nuclear medicine applications
FC-3600	Plastic Scintillator/PMT based detector is ideal for the detection of high energy beta and positron emitters such as ³² P, ⁹⁰ Y, ¹⁸ F, ¹¹ C, ¹³ N. (> 30 keV)
FC-3700	ZnS(Ag) Scintillator/PMT for alpha detection
MCA	40x40 mm Nal/PMT based detector of spectroscopy quality for gamma spectroscopy (30 – 1500 keV) and nuclide identification

Upgrade your MiniScanPRO to a radio-HPLC detection system

The MiniScanPRO can be operated as TLC scanner and radio-HPLC detector. Any combination of diode and PMT detectors and any HPLC System can be connected to the MiniScanPRO for radio-HPLC. By this you can easily upgrade your MiniScanPRO to a complete TLC and HPLC solution.

Check our FlowCountPRO fact sheet to learn more about the available radio-HPLC detectors, detector holders and flow cells.

Figure shows an example of a complete TLC and HPLC solution:



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