

LAM-562

LIQUID ACTIVITY MONITOR



MAIN ADVANTAGES

- Off-line monitor with a measuring chamber
- Spectrometric measurement of volumetric activity of gamma emitting radionuclides in liquids
- Spectrum stabilization using a ^{40}K source
- Compliant with IEC 60861 - Equipment for monitoring of radionuclides in liquid effluents and surface waters

PURPOSE

The LAM-562 monitor is designed for the continuous measurement of the volumetric activity of gamma-emitting radionuclides in liquids. It is primarily used in process circuits of nuclear power plants or research centres. It can also be used for controlled releases of liquids into the environment.

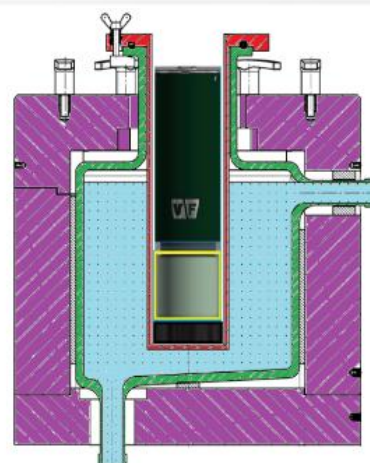
The LAM-562 monitor can be used as:

- an autonomous monitor that archives and displays data locally at the point of measurement,
- as part of a larger monitoring system with centralized remote data display.

The monitor is capable of identifying individual artificial radionuclides present in the measured liquid using peak analysis of spectrum, such as ^{18}F , ^{131}I , ^{137}Cs , ^{60}Co , etc. In addition to artificial radionuclides, it can also identify natural radionuclides such as ^{40}K or ^{114}Bi .

In a standard configuration, the monitor consists of the following parts:

- A frame with a shielded measuring chamber, through which the liquid sample flows (flow must be ensured by a pump)
- GD-52 Gamma Detector with a NaI(Tl) scintillator and a ^{40}K stabilization source
- Digital spectrometric module DIM-15 with an MCA (1K/2K/4K/8K) for signal processing and a PLC for the archiving of measured spectra, measurement results, and events.
- RDU-02 Radiation Display Unit (displaying up to 4 channels) or RDU-22 (displaying up to 16 channels)



Example of the LAM-562 measuring geometry

The processing unit with the DIM-15 and PLC provides power supply to all modules, processes signal from the detector, ensures high voltage, performs automatic spectrum stabilization, evaluates the measured spectra, archives the measurement results (including spectra), and transmits data from up to 10 measurement channels to a host system via the Ethernet interface. ANSI/IEEE N42.42 and IEC 62755 are used as communication standards.

As standard, the monitor is equipped with an NaI(Tl) scintillation detector. If a more complex mixture of radionuclides is expected in the measured liquid, a CeBr3 detector can be used instead.



GD-52 detector with stabilization source

The delivery includes the RadSpec software, which is used for device configuration, spectrometric analysis, and calibration.

SPECIFICATION

Gamma detector GD-52	Nal(Tl) scintillator
Scintillator dimensions	Ø2" x 2"
Resolution	< 8 % (for 662 keV)
Measuring range	depending on the measuring chamber and shielding thickness
Energy range	50 keV to 3 MeV
Radionuclide library	max. 10 radionuclides
Stabilization radionuclide	⁴⁰ K, source type CBSS20
Communication interface	Ethernet, RS-485/422
Ambient temperature	-10 ÷ 55 °C
Ambient humidity	max. 98 %, non-condensing
Ingress protection	Processing unit IP 54 Detector IP 68
Power supply	100 ÷ 240 V AC / 45 ÷ 65 Hz

OPTIONAL FEATURES

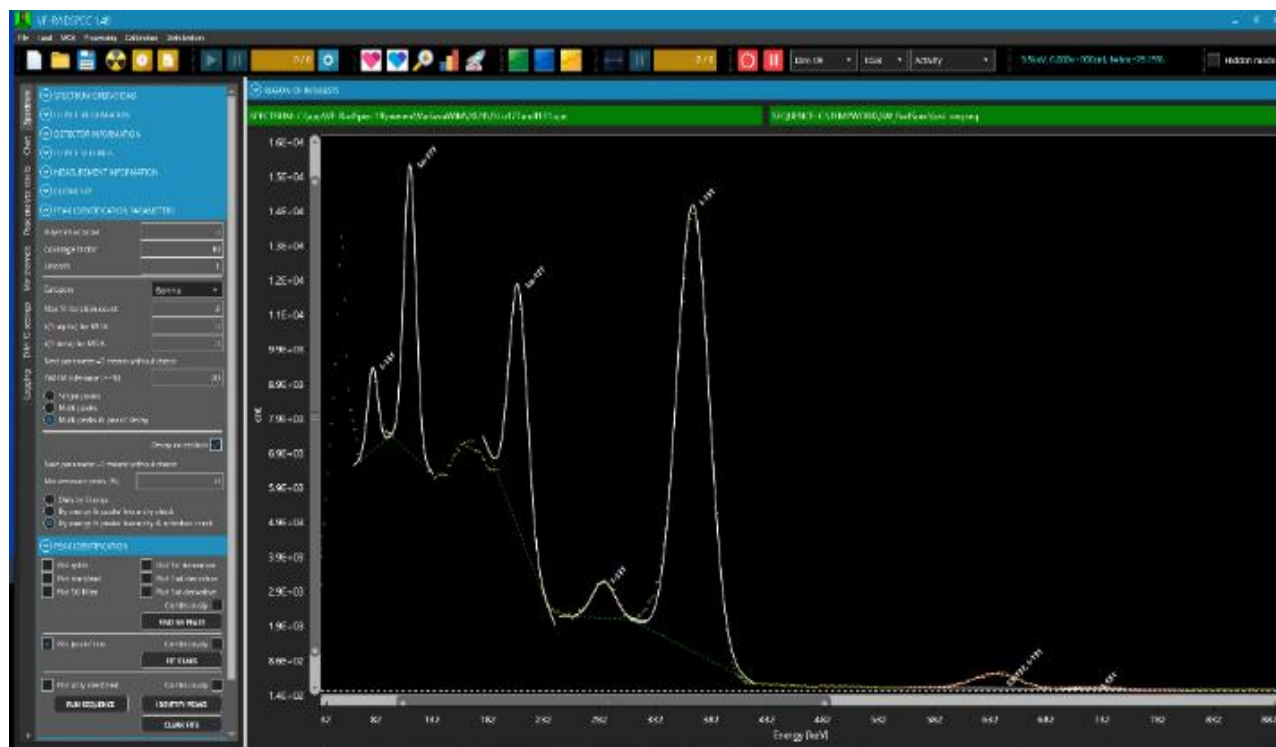
Gamma detector GD-51 with a CeBr₃ scintillator Ø1.5 x 1.5" with resolution < 5% (for 662 keV)

Pump for ensuring the flow of liquid through the measuring chamber of the monitor

Calibration fixture and control source with Cs-137 radionuclide for checking resolution and detection efficiency

RELATED PRODUCTS

GD-52	Gamma Detector
DIM-15	Detector Interface Module with an MCA
RDU-02	Radiation Display Unit (up to 4 measuring channels)
RDU-22	Radiation Display Unit (up to 16 measuring channels)
SW RadSpec	Spectroscopy Software
RMS	Radiation Monitoring System



RadSpec software screen with the measured spectrum of I-131 and Lu-177