



VF NUCLEAR



NUCLEAR
POWER PLANTS



WASTE
MANAGEMENT



RESEARCH
CENTRES



INDUSTRY
& MANUFACTURING

LAD-64

LIQUID ACTIVITY DETECTOR



MAIN ADVANTAGES

- Measurement of volume activity of gamma radionuclides in liquid process circuits of nuclear facilities
- Off-Line monitor - liquid flows through the monitor measuring chamber
- Detector shielding reducing the response to increased background
- Optional real-time background compensation by additional detector
- Checking of the detector function by means of LED check source (without using radioactive source)

PURPOSE

The detector is designed to measure the presence of gamma radionuclides in liquid process circuits of nuclear facilities.

The detector consists of:

- Measuring (optionally also compensating) detector GD-52 with NaI(Tl) 2.5" × 2.5" crystal (correct functioning of the detector can be checked by a built-in LED),
- Stainless steel measuring flow-through chamber, in which the GD-52 measuring detector is installed,
- Lead shielding of the measuring detector and chamber, optionally also of the compensation detector

LAD-64 can be optionally connected to processing and display unit RPU-12 or RPU-04 with one, optionally two, 1024-channel analyzers (MCA) to evaluate data from detector.

The RPU unit automatically deducts a constant background (optionally the background measured by the compensation detector) and determines the total volumetric activity of gamma radionuclides in the liquid flowing through the measuring chamber

RPU-12, comparing to the RPU-04, contains in addition:

- Monochrome display with 86 x 115 mm area
- Optical indication of alarms

The following cards are always installed in the RPU unit of the LAD-64 detector:

- DIM-09 - 1024 channel analyzer MCA
- CIM-03 - RS-485 data interface to a host system.
- PU-06 - processor unit for calculation of volume activity for the models with compensation detectors.

Remote data presentation and status indication can be provided by:

- RDU-12 remote display unit, which communicates with the local RPU-12 (or RPU-04) via the RS-422 interface
- The ASU-50 alarm unit connected to the local RPU unit by digital outputs.



RPU-04

LAD-64

LIQUID ACTIVITY DETECTOR

SPECIFICATION

Measurement range	from 8E03 to 1E09 Bq/m ³
Reference radionuclide	¹³⁷ Cs
Sensitivity	1,95E-4 cps/(Bq/m ³)
Measuring chamber volume	5,7 L
Recommended liquid flow rate	2 – 5 l/min
Temperature range	from 5 to 40 °C
Weight (with two detectors and shielding)	400 kg
IP protection	IP 65
Power supply	+24 V DC/ max. 2 A
Interface	RS-485 Modbus RTU

MODELS

K1574-01	Monitor with measuring and compensating detector
K1574-02	Monitor with measuring detector

OPTIONAL ACCESSORIES

RPU-04	Data acquisition and processing unit (without display)
RDU-12	Radiation Display Unit
ICIM-01	Instrumentation and Control System interface with 2 outputs to PAMS, type 4 - 20 mA and 4 digital outputs for signaling of operation, errors, exceeding of 1st and 2nd alarm levels
ASU-50	Alarm Slave Unit
SIM-05	Modbus / TCP (Ethernet) Card

RELATED PRODUCTS

LAD-07	Device for measuring the tightness of fuel cladding in the primary circuit of a nuclear reactor based on the detection of ⁸⁸ Kr in liquid
LAD-08	Device for measuring the tightness of fuel cladding in the primary circuit of a nuclear reactor based on the detection of ¹³² I in liquid
LAD-66	Equipment for measurement of volume activity of gamma radionuclides in process circuits of nuclear facilities



RPU-12



RDU-12



GD-52

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Specification subject to change without prior written notice.

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