



VF NUCLEAR



NUCLEAR  
POWER PLANTS



WASTE  
MANAGEMENT



RESEARCH  
CENTRES



INDUSTRY  
& MANUFACTURING

LAD-66

# 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-51, with NaI(Tl) 1" x 1" crystal (correct functioning of the detector can be checked by a built-in LED),
- Stainless steel measuring flow-through chamber with a volume of approx. 4 L, in which the GD-51 measuring detector is installed,
- Lead shielding (5 cm) of the measuring detector and chamber, optionally also of the compensation detector

LAD-66 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-66 detector:

- 2 x 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-66

# LIQUID ACTIVITY DETECTOR

## SPECIFICATION

Measurement range	from 1E05 to 1E10 Bq/m <sup>3</sup>
Reference radionuclide	<sup>137</sup> Cs
Measuring chamber volume	4 L
Recommended liquid flow rate	2 – 5 l/min
Temperature range	from 5 to 40 °C
Weight	260 kg
IP protection	IP 65
Power supply	+24 V DC/ max. 2 A
Interface	RS-485 Modbus RTU

## OPTIONAL ACCESSORIES

<b>RPU-04</b>	Data acquisition and processing unit (without display)
<b>RDU-12</b>	Radiation Display Unit
<b>ICIM-01</b>	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
<b>ASU-50</b>	Alarm Slave Unit
<b>CIM-05</b>	Modbus/TCP (Ethernet) Card

## RELATED PRODUCTS

<b>LAD-07</b>	Device for measuring the tightness of fuel cladding in the primary circuit of a nuclear reactor based on the detection of <sup>88</sup> Kr in liquid
<b>LAD-08</b>	Device for measuring the tightness of fuel cladding in the primary circuit of a nuclear reactor based on the detection of <sup>132</sup> I in liquid
<b>LAD-64</b>	Equipment for measurement of volume activity of gamma radionuclides in process circuits of nuclear facilities



RPU-12



RDU-12



VF NUCLEAR

**VF, a.s. Czech Republic**

T: +420 516 428 611

E: sales@vfnuclear.com

[www.vfnuclear.com](http://www.vfnuclear.com)

Specification subject to change without prior written notice.

VF1909050046 / 05 / 2022-11-11