

Ανιχνευτής πυρηνικής ακτινοβολίας FNIRSI GC-01

FNIRSI · EAN 5907085526959

Machine translation from Polski. In case of doubt the manufacturer's original document prevails.

Radiation Meter

FNIRSI GC-01

Geiger Counter

Before using, please read the user manual. Information for users

- Please read this user manual carefully and follow the instructions contained in the manual for the detector to function correctly.
- Please keep this manual.
- Do not use the device in flammable and explosive environments.
- Used batteries and discarded devices must not be disposed of with municipal waste. Please follow the relevant national or local regulations.
- If you have any quality issues with the device or questions regarding its use, please contact the "FNIRSI" customer service online or the manufacturer. We will try to resolve the issue as quickly as possible.

1. Product Introduction

This product uses a Geiger-Müller counter. The counter is used to detect the intensity of ionizing radiation (gamma and X-rays). A gas tube or small chamber is used as a probe. When the voltage applied to the probe reaches a certain range, each ionization of the beam in the tube causes the formation of a pair of ions, which can be amplified, creating an electrical pulse of the same magnitude. This pulse is recorded by the connected electronic device. This way, the number of rays per unit time is measured. The alarm threshold for measurement frequency can be selected freely.

2. Key Features

- Detects X-ray and gamma radiation.
- High sensitivity, can be used in various environments.
- Data is saved when turned off.
- High-resolution LCD display. The device status is clear at a glance.
- 3 alarm modes to choose from: light, vibration, sound.
- Real-time display.

- The product allows setting the dose and alarm threshold for cumulative dose.

3. Parameter Description

Product Name Radiation Meter

Dimensions

Types of Detected Ionizing radiation

Radiation (gamma rays, X-rays, etc.)

Detector GM tube for energy compensation

(Geiger counter)

Equivalent Dose Value

Cumulative Equivalent

Dose Value

Energy Range

Language Chinese/English

Sensitivity

Dose Unit

Battery Type Lithium battery 1100 mAh

Alarm Method Light, vibration, sound

4. Button Description

Left/Back Button: Return to the top menu from the lower menu

Right/Settings Button: Enter settings menu/enter lower menu

Power/On/Off/OK Button:

Turning on/off/confirming

Up Button: Switch options up and down

The illustration shows the appearance of the product.

5. Operating Instructions

1. Turning On/Off

Press the power button briefly to turn on the device. Long press the power button to turn off the device.

2. Monitoring Interface

Upon startup, it automatically goes to this page and monitors the parameters:

- Detected value in real-time, displayed in the upper left panel
- Average value/maximum value
- Current alarm dose value

- Total alarm dose value
- Total cumulative dose value

Press the left and right buttons to go to the wave form detection page as follows:

- Waveform monitoring
- Current dose value in real-time
- Maximum value
- Minimum value

The illustrations show the radiation dose measurement screen and the graph of radiation level changes over time.

3. Settings

Press and hold the right button/settings button to enter the settings menu. Press and hold the left button/back button on the settings page to return to the monitoring page. Press the up and down buttons to switch between settings options. Settings options:

- Device settings
- Alarm settings
- System clock
- Alarm mode
- Display settings

The illustration shows the device settings menu.

3.1 Device Settings

Press the right button to go to the lower level and set five measurement units:

$\mu\text{Sv/h}$

$\mu\text{Gy/h}$

mR/h

CPS

CPM

The illustration shows the selection of the radiation measurement unit – the selected option is $\mu\text{Sv/h}$.

3.2 Alarm Settings

Press and hold the right button/settings button to enter the settings menu. Press the up and down buttons to switch between settings options. Press the right button to go to lower settings and set or change the values of the following options:

Current alarm dose value

Cumulative alarm dose value

Cumulative dose is reset to zero

The illustration shows the radiation alarm settings – current, cumulative, and reset.

3.3 System Clock

Press and hold the right button/settings button to enter the settings menu.

Press the up and down buttons to switch between setting options. Press the right button to access lower-level settings and set the date and time. The illustrations show the date and time settings in the "Sys Clock" menu. 3.4 Alarm Mode

Press and hold the right button/settings button to access the settings menu. Press the up and down buttons to switch between setting options. Press the right button to access lower-level settings. On or off:

- Indicator
- Vibration
- Sound

The illustration shows the alarm mode settings: LED, vibration, and sound. 3.5 Display Settings

Press and hold the right button/settings button to access the settings menu. Press the up and down buttons to switch between setting options. Press the right button to access lower settings:

- Screen brightness adjustment
- Switching between Chinese and English

The illustrations show the screen brightness and interface language settings. 6. Converting Radioactive Units

1. International Standards (1990)

Personnel exposed to radioactive radiation: 20 mSv/year (10 μ Sv/hour)

General public: 1 mSv/year (0.52 μ Sv/hour)

2. Unit Conversion

1 μ Sv/h = 100 μ R/h Inc/kg.h = 4 μ R/h

1 μ R = 1 y (unit used in the nuclear industry)

Radioactivity:

Exposure:

Measurement equivalent:

Absorption measurement:

Radon unit:

Others:

1 Sv equals 1 Gy 1 g of radium = 0.97 Ci ~ 1 Ci

3. Calculating the Decay Values of Radioisotopes

A₀ - Known source strength, A is the time that has elapsed, according to the radioactive

decay calculation table. 4. The Relationship Between the Radioactive Radiation Source and Distance

The intensity of the radioactive radiation source is inversely proportional to the square of the distance. $X = A \cdot \Gamma / R^2$ A: Point source activity; R: Distance from the source; Γ : Radiation dose constant

Note: Ra-226 (t 1608) $\Gamma = 0.825 \text{ ren. m}^2/\text{hour Curie}$

Cs-137 (t 29.9 years) $\Gamma = 0.33 \text{ ren. m}^2/\text{hour Curie}$

Co-60 (t 5.23 years) $\Gamma = 1.32 \text{ ren. m}^2/\text{g}$

According to the radioactive decay calculation table, check the table to calculate radiation shielding:

Reduced by half and reduced to 1/10 of the value (cm) for different substances. Source

Narrow Source Iron Concrete

of radiation of radiation

Halving Halving Halving

Cesium-137

Iridium-192

Cobalt-60

7. Notes

Nuclear radiation detectors are advanced devices. Caution should be exercised. The following recommendations will facilitate the maintenance of the devices and extend their lifespan. 1. When storing and using, keep the device as dry as possible. Excessive moisture can cause malfunction and damage to the device. 2. Do not use the device in a harsh or careless manner; prevent drops, impacts, and sudden vibrations of the device. Otherwise, the device will be damaged.

3. When the power indicator is too low, it indicates a state of undercharging and the device should be charged in time. In the case of severe undercharging, the device cannot be turned on or off, and abnormal phenomena such as a blurred screen may occur. If the device is not functioning properly, please contact our after-sales service. 8. Maintenance

- Before use, keep the device dry and wipe any dirt from the surface with a soft cloth. Do not use detergents or solvents. - Damaged devices, accessories, and packaging should be

recycled in an environmentally friendly manner. - If the device will not be used for an extended period, it should be turned off. - To avoid malfunctions, do not disassemble or replace any components without the manufacturer's consent. - If not in use, the device should be stored in a dry place.

9. Product Information

Product Name: Radiation Meter

Brand/Model: FNIRSI/GC-01

Manufacturer Information: Shenzhen FEI NI RUI SI Technology CO., LTD (FNIRSI)

West of Building C, Weihuada Industrial Park, Dalang Street, Longhua

District, Shenzhen, Guangdong, China. Code: 518000

business@fnirsi.com

Representative Information:

ALTWAY (PL) Sp. z o.o. aleja Grunwaldzka 212, 80-266 Gdańsk, Poland

bok@altway.pl

Battery Specification:

Category: Portable

Type: Lithium

Net Weight (kg): 0.02

Capacity (mAh): 1100

Exceeding permissible cadmium content (0.002%) or lead (0.004%) (yes/no): no

Environmental Protection

Used electronic equipment marked in accordance with the European Union directive must not be placed together with other municipal waste. It is subject to selective collection and recycling at designated points. By ensuring its proper disposal, you prevent potential negative consequences for the natural environment and human health. The collection system for used equipment complies with locally applicable environmental protection regulations regarding waste disposal. Detailed information on this can be obtained from the municipal office, waste management facility, or the store where the product was purchased. The product meets the requirements of the so-called New Approach directives of the European Union (EU), concerning issues related to user safety, health protection, and environmental protection, specifying hazards that should be detected and eliminated. This document is a translation of the original user manual created by the manufacturer. Detailed information about the distributor/manufacturer warranty conditions is available on the website <https://serwis.innpro.pl/gwarancja>

The product should be regularly maintained (cleaned) by the user or through specialized service points at the user's cost and scope. In the absence of information about necessary

periodic maintenance or service actions in the user manual, the physical condition of the product should be assessed regularly, at least once a week, against that of a physically new product. If any deviation is detected or noted, urgent maintenance (cleaning) or service steps should be taken. Failure to properly maintain (clean) and respond upon detection of a deviation may lead to permanent damage to the product. The guarantor is not responsible for damages resulting from negligence. Importer:

INNPRO Robert Błędowski sp. z o.o. ul. Rudzka 65c

44-200 Rybnik, Poland

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hurt@innpro.pl

www.innpro.pl

Safety Precautions

Before starting to charge, check if the device contacts are clean. Never leave the device unattended while in use and charging. Ensure that you can quickly disconnect the device from the power source in an emergency. Never expose the device to high temperatures. Charge the device in a dry and well-ventilated place away from flammable materials, maintaining a minimum space of 1m from other objects. Never cover the device while charging. Never use a power supply, charging station, cables, etc., without the manufacturer's recommendation and certification. Take care of your property; the device is equipped with cells that are difficult to extinguish, so have a fire blanket on hand. LI-ION Battery

The device is equipped with a LI-ION (lithium-ion) battery, which, due to its physical and chemical structure, ages over time and with use. The manufacturer specifies the maximum operating time of the device under laboratory conditions, where optimal working conditions for the device exist, and the battery itself is new and fully charged. Actual operating time may differ from that declared in the offer and this is not a defect of the device but a feature of the product. To maintain maximum battery life, it is not recommended to discharge it below 3.18V or 15% of total capacity. Lower values, such as

2.5V for the cell permanently damages it and is not covered by warranty. If the battery or the entire device is not used for more than one month, the battery should be charged to 50% and its charge level should be checked periodically every two months. Store the battery and device in a dry place, away from sunlight and negative temperatures. LI-PO Battery The device is equipped with a LI PO (lithium polymer) battery, which due to its physical and chemical structure ages over time and usage. The manufacturer specifies the maximum

operating time of the device under laboratory conditions, where optimal working conditions for the device exist, and the battery itself is new and fully charged. Actual operating time may differ from what is stated in the offer and this is not a defect of the device but a product feature. To maintain maximum battery life, it is not recommended to discharge it below 3.5V or 5% of total capacity. Lower values, such as 3.2V for the cell, permanently damage it and are not covered by warranty. If the battery or the entire device is not used for more than one month, the battery should be charged to 50% and its charge level should be checked periodically every two months. Store the battery and device in a dry place, away from sunlight and negative temperatures.

Warnings and Safety Information All information regarding operation and usage can be found in the user manual or on the product label. Before using the products, familiarize yourself with its content and follow the instructions contained therein. Also, review the following information before use:

User Safety

1. Use measuring tools according to their intended purpose. Do not use measuring tools for tasks they were not designed for, to avoid damaging them or obtaining incorrect measurement results.
2. Always ensure that the tool is in good technical condition before use. Damaged tools, such as cracked housings or damaged displays, may lead to incorrect measurements or risk of accidents.
3. Regularly calibrate measuring tools to ensure their accuracy and reliability of measurements. Incorrectly calibrated devices may lead to erroneous results.

Precautions

1. Use appropriate eye protection, especially when working with measuring tools that may emit radiation.
2. Keep measuring tools away from children and untrained individuals to prevent accidental damage or misuse.
3. Avoid using measuring tools in extreme temperature, humidity conditions, or in an atmosphere with high dust concentration, which may affect their accuracy and functionality.
4. When working with measuring tools, exercise caution to avoid damaging delicate measuring elements (e.g., sensors, probes).

Safe Usage

1. Always ensure that the measuring tool is properly set up and secured to avoid measurement errors or damage.
2. Use measuring tools only in designated areas that provide adequate stability and minimize the risk of accidents, such as slippery or uneven surfaces.
3. Never take measurements on live components or in conditions that may pose a safety hazard.

Operating Guidelines in Appropriate Conditions

1. Store measuring tools in a dry, cool place, away from moisture and direct sunlight, which may damage the devices or affect their accuracy.
2. When using measuring tools, ensure they are well seated and not exposed to shocks or impacts that may lead to damage.
3. Avoid using measuring tools in areas with extreme conditions, such as heavy vibrations, hot surfaces, dust, or moisture, unless the tool is designed for such use by the manufacturer.

Maintenance Instructions

1. Regularly check the condition of measuring tools, especially measuring

elements (e.g., sensors, probes, displays) and batteries. 2. Follow the cleaning instructions provided by the manufacturer. Use appropriate cleaning materials (e.g., soft cloths) to avoid damaging delicate elements. 3. Regularly calibrate measuring tools according to the manufacturer's recommendations to maintain measurement accuracy. Safe Disposal 1. Used or damaged measuring tools should be disposed of in accordance with applicable environmental protection and electronic recycling regulations. 2. Do not throw measuring tools into regular waste containers, as they may contain elements harmful to the environment. 3.

Contact local authorities or recycling companies for information on the proper disposal of used measuring tools. Declaration of conformity Products have been designed in accordance with the safety requirements specified in Regulation (EU) 2023/988 on general product safety, ensuring their compliance with applicable safety and health standards for users.