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› MOESAPU FS-5000 Geiger Counter User Manual

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MOESAPU FS-5000 Geiger Counter User Manual

Model: FS-5000

1. INTRODUCTION

The MOESAPU FS-5000 is a portable nuclear radiation detector designed for precise measurement of Beta, Gamma, and X-ray radiation. Equipped with an accurate J321 GM tube, it provides real-time dose rate monitoring, comprehensive total dose tracking, and multiple alarm methods to ensure user safety. This manual provides essential information for the proper setup, operation, and maintenance of your device.



Figure 1: MOESAPU FS-5000 Geiger Counter, front view showing the display and control buttons.

2. PRODUCT OVERVIEW

The FS-5000 Geiger Counter offers a range of features for effective radiation detection:







- **Precision Measurement:** Utilizes an accurate J321 sensor for detecting Beta, Gamma, and X-ray radiation within an energy range of 48KeV-1.5MeV with a 0.5-second response time. It produces distinct click sounds corresponding to particle detection.
- **Comprehensive Dose Tracking:** Provides real-time dose rate monitoring (0.01 μ Sv/h to 50mSv/h) and total dose tracking (0 μ Sv-1000Sv). Timed dose functionality allows for controlled cumulative exposure. Data can be retained without power and downloaded via PC software.
- **Portable Design:** Features a clip design for convenient portability, suitable for various environments including home inspections, medical departments, and nuclear facilities.
- **Extended Battery Life:** Powered by a rechargeable 1800mAh battery, offering up to 720 hours of standby time. Features a low-battery alert and Type-C recharging.
- **Multi-mode Alarm:** Provides immediate warnings via selectable sound, light, and vibration when dose rate or total dose thresholds are exceeded. Thresholds are customizable.
- **Clear Display:** A 6-level adjustable brightness TFT-LCD screen ensures readability in various lighting

conditions.

Radiation Detector



Six features

-  1800mAh
-  Timing
-  Data analysis
-  Triple alarm
-  Trend Graph
-  0.01µSv-50.0mSv/h

J321 Geiger Counter

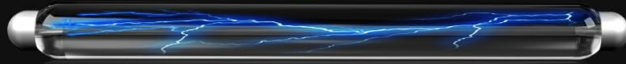


Figure 2: Overview of the FS-5000's key features, including battery capacity, timing, data analysis, triple alarm, trend graph, and measurement range.

MAIN INTERFACE SWITCHED FREELY

The main interface is simple and compact display



Figure 3: Diagram illustrating the J321 Geiger tube and its product parameters, including cathode material, plateau slope, measuring range, and application range.

3. SETUP

3.1 Initial Charging

Before first use, fully charge the device using the provided Type-C cable. Connect the cable to the device's Type-C port and a compatible USB power adapter (not included).

CINNECTED TO THE PC TERMINAL

External Type-C connected to the PC terminal personal radiation dose management system to achieve data download



Figure 4: The FS-5000 connected via its Type-C port for charging.

3.2 Power On/Off

Press and hold the power button (usually marked with a circle and vertical line) to turn the device on or off.

3.3 PC Connection for Data Download

The device supports connection to a PC for data download and management. Connect the FS-5000 to your computer using the Type-C cable. Refer to the official MOESAPU website for any required PC software.

The J321 Geiger tube provides accurate and fast detection of current environmental radiation



Figure 5: The FS-5000 connected to a laptop, demonstrating its PC interface for data management.

4. OPERATING INSTRUCTIONS

4.1 Main Interface Navigation

The device features a simple and compact main display. Use the navigation buttons (typically arrow keys and an 'OK' button) to move between different screens and settings.

MEASUREMENT INTERFACE

Simple style

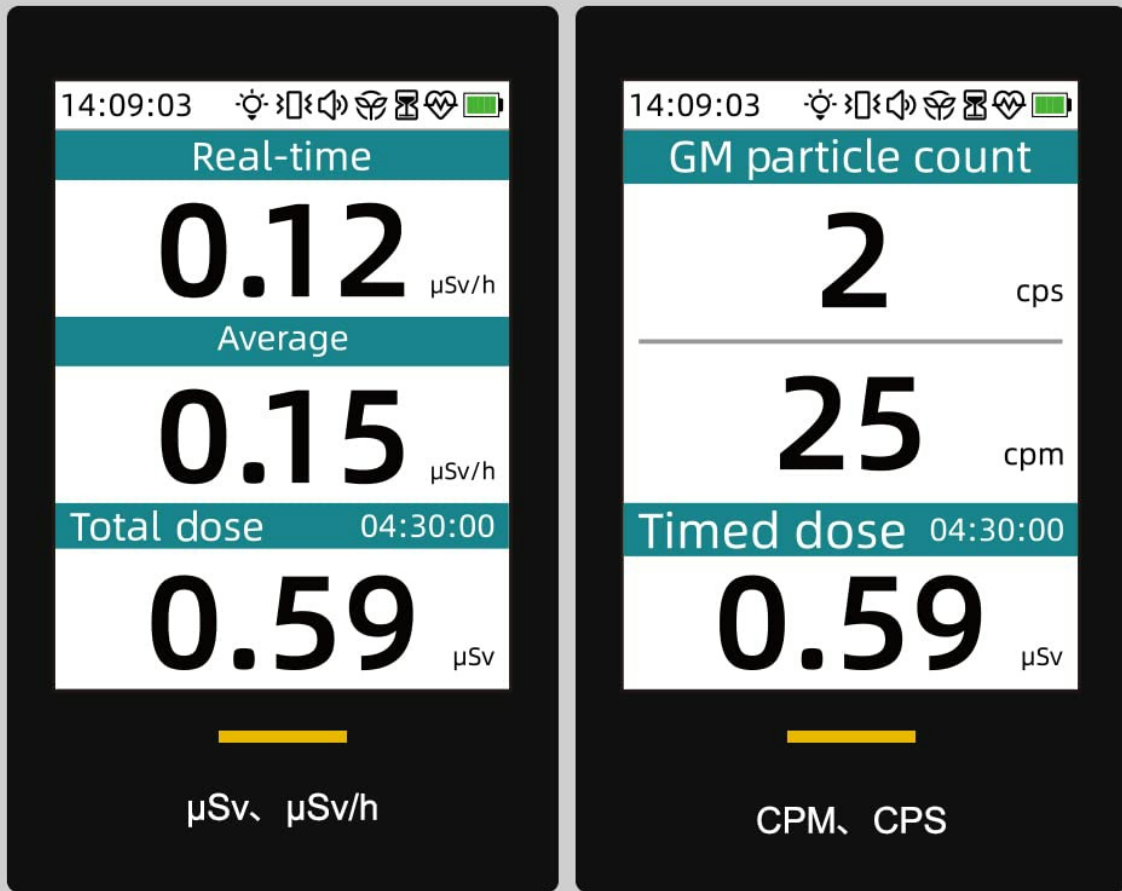


Figure 6: The main interface of the FS-5000, showing options for Threshold, Data, Timed Dose, Alarm, Language, Time, Backlight, Mode, and Device settings.

4.2 Real-time Measurement

Upon powering on, the device will display real-time dose rate measurements. The display typically shows current real-time values, average values, and total accumulated dose.

RECHARGEABLE LITHIUM BATTERY

1800mAh Endurance mode 30 days



Figure 7: Two measurement interface styles: one displaying μSv and $\mu\text{Sv/h}$ values, and another showing GM particle count in CPM and CPS.

4.3 Total Dose Tracking

The device continuously tracks the total accumulated radiation dose. This value is crucial for assessing long-term exposure risks. The total dose is retained even if the device loses power.

4.4 Timed Dose Function

Utilize the timed dose feature to monitor cumulative dose over a specific period, allowing for controlled exposure in high dose rate areas.

4.5 Alarm Settings

The FS-5000 provides audio, visual (light), and haptic (vibration) alarms. These can be configured in the settings menu. You can customize the dose rate and total dose thresholds that trigger these alarms.

TRIPLE ALARM

Choose three alarm methods : Sound , Vibrtion, Light



Vibration



Sound



Light



Figure 8: Illustration of the three alarm methods: Vibration, Sound, and Light, which provide immediate warnings.

4.6 Backlight Adjustment

Adjust the screen's brightness through the settings menu to optimize visibility in various lighting conditions. There are 6 levels of adjustable brightness.

5. MAINTENANCE

5.1 Cleaning

Wipe the device with a soft, dry cloth. Do not use abrasive cleaners or solvents, as they may damage the casing or screen.

5.2 Battery Care

To prolong battery life, avoid fully discharging the device frequently. Recharge the battery when the low-battery alert is displayed. Store the device in a cool, dry place if not used for extended periods.

5.3 Storage

Store the Geiger counter in a safe place, away from extreme temperatures, humidity, and direct sunlight. Keep it out of reach of children.

6. TROUBLESHOOTING

- **Device not turning on:** Ensure the battery is charged. Connect the device to a Type-C charger and attempt to power it on again.
- **No radiation reading:** Verify the device is powered on and in the correct measurement mode. Ensure the environment is not shielded from radiation sources.
- **Alarm not triggering:** Check the alarm threshold settings in the menu. Ensure the dose rate or total dose exceeds the set thresholds. Verify alarm sound, light, and vibration options are enabled.
- **Inaccurate readings:** Ensure the device is used in a stable environment, away from strong electromagnetic interference. If issues persist, consult the manufacturer's support.

7. SPECIFICATIONS



Figure 9: Detailed technical parameters for the FS-5000 Geiger Counter.

Parameter	Value
Sensor	Glass Geiger Counter (J321 GM Tube)
LCD Screen	2.4-inch TFT LCD
Measurement Range (Dose Rate)	0.01 $\mu\text{Sv/h}$ – 50 mSv/h
Dose Measurement Range	0 μSv – 1000 Sv
Sensitivity	>1 CPS/ $\mu\text{Sv/h}$ (relative to ^{60}Co)
Energy Response	48 KeV – 1.5 MeV
Relative Error	<10% (1 mSv/h)
Power Supply	3.7V rechargeable lithium battery, 1800 mAh
Power Consumption	<15 mW (long endurance mode: >30 days)
Temperature	-10°C – +45°C
Dimensions	127 x 65 x 27 mm
Weight	160g (including battery)

8. WHAT'S IN THE BOX

The MOESAPU FS-5000 package includes:

- FS-5000 Geiger Counter
- Type-C Cable
- User Manual

9. WARRANTY AND SUPPORT

MOESAPU is committed to providing quality products and after-sales service. For any questions, technical assistance, or support inquiries regarding your FS-5000 Geiger Counter, please refer to the contact information provided in the included user manual or visit the official MOESAPU website.