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Radiation Detector



USER MANUAL

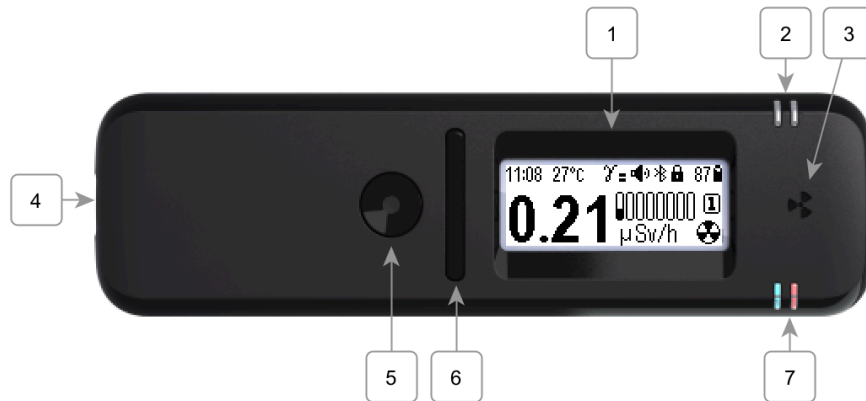
The developer continuously improves the firmware. Please use the latest version of the manual

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Quick Start

Radiacode Zero is a portable wide-range radiation detector and dosimeter for real-time radiation assessment. The device measures gamma and X-ray dose rate, accumulates dose, automatically logs measurements, and warns of radiation hazards.



Step 1: Unpacking and charging

Unpack the device, check it is intact and complete. Connect the USB Type-C cable to a charger (5 V, 0.5 A or more) or a computer USB port. Wait for a full charge — the blue indicator goes out.

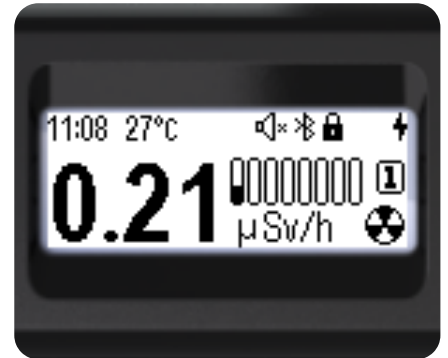
If the device has been brought in from the cold, leave it in its packaging at room temperature for two hours before opening. Otherwise, moisture condensation may cause a malfunction.

Step 2: Turning on

Press and hold the round button (3 seconds). The device starts in Monitor mode and begins estimating the dose rate.

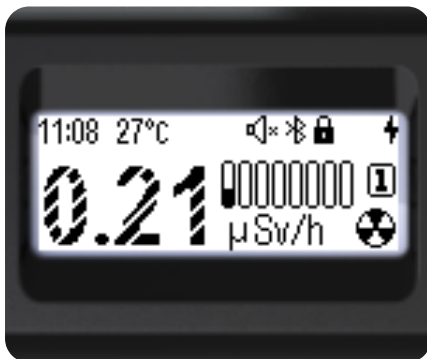


- Press and hold the round button until the device turns on (at least 3 seconds).
- On startup, the device will be in Monitor mode.
- If enabled, a startup sound, vibration, and backlight will be activated.

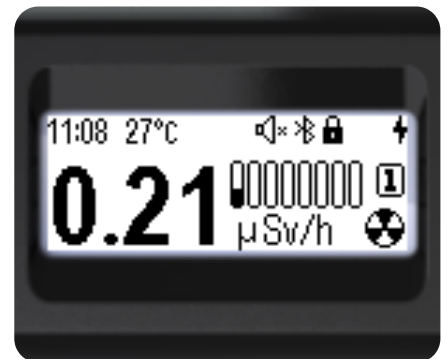


Step 3: Reading the values

The screen shows the current dose rate estimate. While data is insufficient, the digits are hatched. Usually the estimate becomes reliable in a few seconds.



- When data is insufficient, the digits are hatched with light diagonal stripes.
- When the estimate is reliable, the digits are fully filled in.



Step 4: Connecting to a smartphone

Install the RadiaCode app from Google Play, the App Store, or the RadiaCode website at www.radiacode.com/downloads. Connect the device via Bluetooth for extended features: Google and OSM maps with GPS coordinates, charts, history, and external database storage.

Additionally recommended:

- Set the current time (Settings → Time)

- Select the menu language (Settings → Language)
- Configure the display backlight and orientation
- Configure sound, vibration, and LED signals
- Update the firmware

Safety

Important warnings

Keep the device in places out of reach of children and pets.

Do not disassemble the device. Repairs — only at certified service centres.

Operating a faulty device is unsafe. If a fault is found, contact the manufacturer's service centre.

Handling rules

Temperature. Avoid exposure below $-20\text{ }^{\circ}\text{C}$ or above $+45\text{ }^{\circ}\text{C}$. Extreme temperatures reduce battery capacity, shorten its life, and may degrade detector performance.

Moisture. Despite IP64 protection, avoid getting the device wet. Water ingress voids the manufacturer's warranty. If water gets on the device, wipe it with a dry cloth.

Condensation. If the device has been brought in from the cold, leave it in its packaging at room temperature for two hours before opening. Otherwise, moisture condensation may cause a malfunction.

Handling. Do not grip the device tightly; press the buttons gently. Handle with care — the display can crack or get scratched.

Shocks. Drops, external impacts and rough handling may cause serious damage to the device electronics.

Electromagnetic interference. Avoid strong electromagnetic fields and electrostatic discharge. Electronic and household devices, cordless phones, and routers may interfere with the device operation.

Dust. Do not use or store the device in contaminated or dusty environments.

Heat. Avoid contact with hot objects and open flames. The battery may ignite if overheated.

Charging. Use only USB chargers rated at 5 V and at least 0.5 A, or a computer USB port. Do not use faulty chargers. Connect the USB cable carefully. Damage caused by improper charging is not covered by the manufacturer's warranty.

Firmware update. Do not disconnect the device during a firmware update — interrupting the process may cause a malfunction that can be resolved by contacting the manufacturer's customer support.

Radioactive contamination. Avoid contaminating the device with radioactive materials. When working in potentially contaminated areas, place the device in a sealed bag.

About the device

What Radiacode Zero can do

Radiacode Zero is a compact radiation detector and dosimeter based on a plastic tissue-equivalent scintillator with a silicon photomultiplier (SiPM) and temperature compensation. Thanks to adaptive data processing, the device provides a fast response to changes in the radiation background and high reliability at high doses of ionizing radiation. The device is suitable for fieldwork, inspection of various objects and materials, and continuous environmental monitoring.



With Radiacode Zero you always have:

- Area survey and inspection of various objects and materials
- Continuous radiation monitoring
- Automatic data logging to device memory; time-stamped database
- Accumulated dose monitoring
- Radiation source search
- Alarms for radiation hazards and changes in the radiation environment
- Standalone operation or paired with a smartphone/computer
- Wireless data transfer; processing in apps for iOS, Android, macOS, and Windows

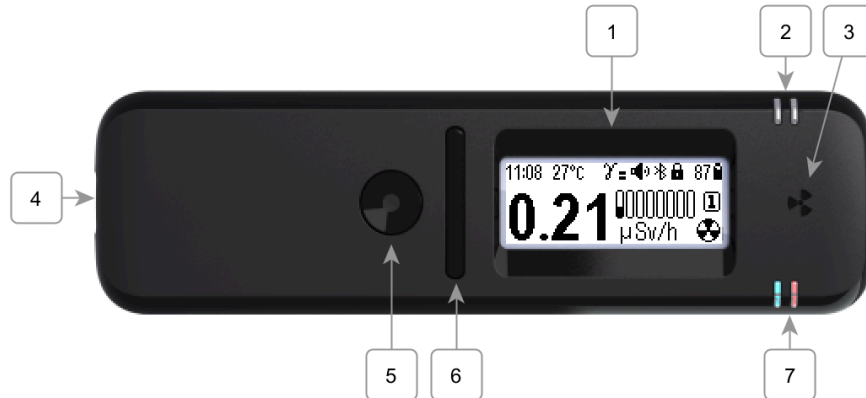
Device features:

- Fast response thanks to the plastic scintillator with SiPM and adaptive data processing
- Continuous estimation of dose rate, accumulated dose, and detector count rate. Estimation and data accumulation are independent of the display mode
- Wide measurement range thanks to two operating modes and a tissue-equivalent scintillator
- IP64 — dust and splash protection
- Long standalone operation (up to 200 hours)
- 6 independent alarm thresholds (2 each for count rate, dose rate, and dose)
- Non-volatile memory for approximately 1000 hours of observations; transfer via USB and Bluetooth; external database storage
- GPS coordinate tagging and display on Google and OSM maps (with a smartphone)
- Apps for Windows, macOS, Android, and iOS

- Ongoing development; firmware updates
- Energy-efficient graphic display with backlight; adaptive screen orientation
- Sound, light and vibration indication, duplicated on a smartphone

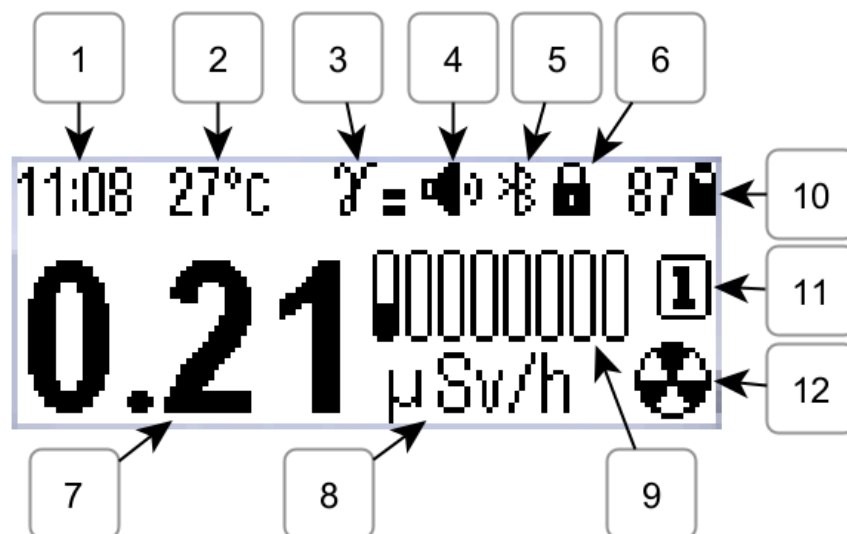
Design elements

Components, controls, and indicators of Radiacode Zero:



1. LCD display
2. Ambient light sensor
3. Location of the radiation sensor, digital thermometer, and orientation sensor
4. USB Type-C port for charging and data exchange
5. Power and confirmation button
6. Swing buttons (up and down)
7. Light indication: charging (blue); photon registration (green — normal, red — alarm threshold exceeded)

Main display indicators



1. Current time
2. Radiation sensor temperature
3. Alarm sign and level
4. Sound indication status
5. External device connection status (Bluetooth, USB)
6. Button lock sign
7. Current dose rate / count rate estimate
8. Dose rate / count rate units
9. Graphical dose rate indicator
10. Battery level and charging status
11. Operating range indicator (1 – pulse mode, 2 – current mode)
12. Selected display mode indicator

Technical specifications

Parameter	Value
Dosimetric quantity	H*(10) — ambient dose equivalent rate
Units	Sv, rem, CPS, CPM
Detector	Plastic scintillator 14×14×14 mm with SiPM (temperature compensated)
Alarm signalling	Sound, vibration, light
Alarm thresholds	6 (2 each for CPS, dose rate, dose)
Type of radiation	Photons (gamma, X-ray)
Energy range (dose measurement)	100 keV–3.0 MeV
Energy range (indication)*	30 keV–3.0 MeV
Count rate range (Cs-137)	0–144 MCPS
Dose rate range	0.1 µSv/h–9000 mSv/h
Dose rate error	±20%
Accumulated dose	0–100 Sv, error ±20%
Sensitivity Cs-137 (662 keV)	16 CPS/(µSv/h)
Sensitivity Co-60 (1250 keV)	8 CPS/(µSv/h)
Display update period	0.5 s

Memory	≈1000 hours (non-volatile)
Continuous operation time	Up to 200 hours
Battery	Li-Pol 3.7 V, 1500 mAh
Charging: voltage / max current / time	5 V / 750 mA / ≈4 h
Max USB consumption	800 mA
Protection	IP64 (dust and splashes)
Operating temperature	-20...+45 °C
Max humidity	85%
Wireless interface	BLE 5.2
Wired interface	USB 2.0+, Type-C
Display	Monochrome LCD 128×48, 34×13 mm, FSTN, transfective, positive
Dimensions (W×H×D)	127×34×21 mm
Weight	76 g

** In the 30–100 keV range, the device detects radiation, but dose rate readings may deviate from actual values due to the detector's energy response characteristics. In other words, the device will detect the presence of radiation but will measure it with a greater error than in the primary range of 100 keV–3.0 MeV.*

System requirements

Computer: Windows 8/10/11, 2 GB RAM or more, 1 GB free disk space, USB port, 1024×768 display or better.

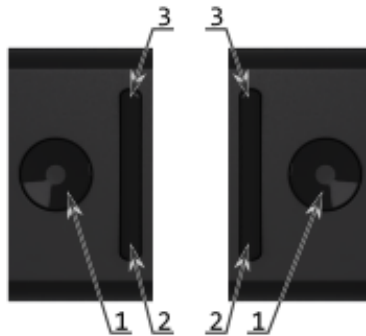
Android: version 6.0 or higher.

iOS/macOS: iOS 17.0+ / macOS 14.0+ (Mac with Apple Silicon).

Controls and display

Buttons

Intuitive menu system, three buttons. Sound and vibration indication assist operation. Which swing button is “up” and which is “down” depends on the screen orientation.



The device in the left and right hand:

1. Power and confirmation button, round.
2. "Down" swing button.
3. "Up" swing button.

Two types of button presses: short and long (at least 3 seconds).

Long press on the round button [1]: turn on, unlock/lock the swing buttons, confirm viewing of the alarm list, some settings screens.

Short press on the round button: call up the menu, return from the menu, confirm the selection, toggle options, turn off alarms.

The swing buttons lock automatically after 5, 10, 15 or 30 seconds of inactivity; with a backlight duration of 2 or 5 minutes — after 30 seconds. Unlock — long press on the round button. In Auto mode the backlight does not turn on in bright light. Lock again — long press on the round button.

Short press on the swing buttons [2, 3]: move between menu items, set values, additional functions in the display modes.

Long press on the swing buttons [2, 3] depends on the context. In menus — fast scrolling. In display modes, long press on the “up” swing button turns the sound indication on/off.

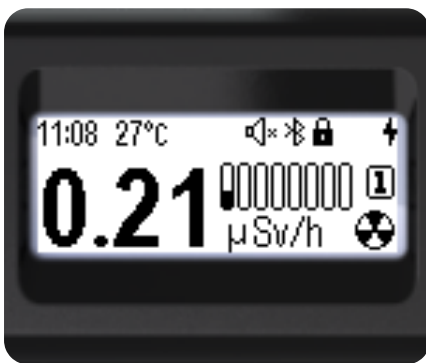
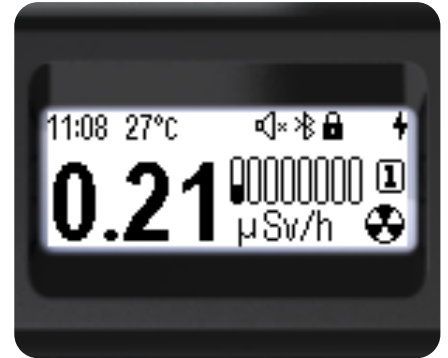
When navigating any menu level, the selected item is highlighted in negative — light on dark.

Every button press is accompanied by a short sound and vibration (if enabled). Button press sound and vibration can be disabled.

Turning on and off



- Press and hold the round button until the device turns on (at least 3 seconds).
- On startup, the device will be in Monitor mode.
- If enabled: startup sound, vibration, and backlight.



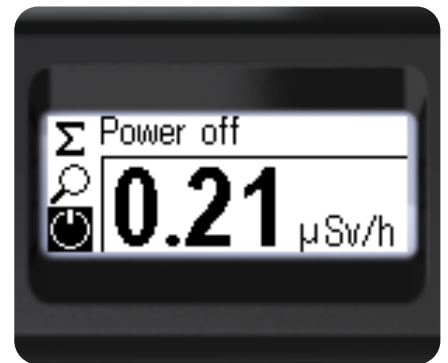
- To turn off, short-press the round button until the menu appears.
- The lock icon means the swing buttons are locked. To unlock, hold the round button (3 s).



Lock icon:  — swing buttons are locked.



- Using the swing buttons, navigate to the Power off icon.
- Short-press the round button to turn the device off.
- If enabled, the “turning off” sound plays. The screen goes dark.



Power off icon: 

Indication: sound, vibration, light

Radiacode Zero has built-in sound and vibration sources for confirming button presses and indicating events and alarms. Light indication is provided for remote monitoring.

Sound may accompany:

- Turning on and off
- Button press
- Bluetooth connection established
- Photon registration
- Alarm threshold exceeded
- Low battery
- Response to the "Find the device" request

Vibration may accompany:

- Turning on and off
- Button press
- Alarm threshold exceeded
- Response to the "Find the device" request

Light indication:

- Battery charging — blue, continuous glow
- Photon registration in normal conditions — green flash
- Photon registration during alarm — red flash

Signals can be turned on/off by groups:

- All sounds
- Button press sound
- Photon registration sound
- All vibration types
- Light indication

Display



- Monochrome graphic LCD, 128×48 pixels, 34×13 mm, FSTN, transfective, positive

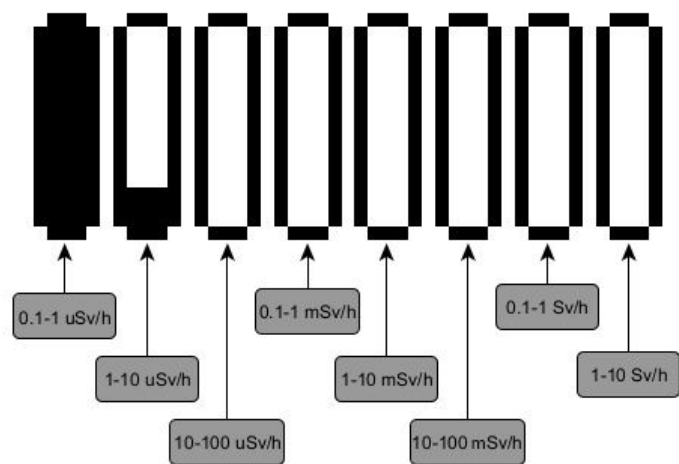
The display has a backlight for use in the dark. Automatic ambient light detection ("Auto" mode): the backlight activates only on a button press; in bright light (e.g. sunlight), the backlight will not turn on. The backlight has ten brightness levels. Screen orientation: Auto / Right / Left. Configured via the Settings menu.

The display is used to show: device status, graphical dose rate indicator, control menu, settings menu, Monitor mode (dose rate estimation), Dose mode (accumulated dose estimation), and Search mode (real-time data visualization). The status bar is at the top of the display. Its content depends on the selected display mode.

Icons and symbols

Logarithmic indicator

In all display modes except settings, a logarithmic indicator is shown. Each vertical bar represents the value (dose rate, dose, count rate) on a logarithmic scale. Adjacent bars differ by a factor of 10:



Status bar icons

Icon	Description
	100–90% charge, running on battery
	Less than 90% charge
	Less than 80% charge
	Less than 70% charge

	Less than 60% charge
	Less than 50% charge
	Less than 40% charge
	Less than 30% charge
	Less than 20% charge
	Less than 10% charge — charge the battery
	Charging in progress
	Fully charged, powered externally
	Swing buttons locked
	USB connection established
	Bluetooth connection established
	All sounds off

	Sounds on
	Count Rate Alarm 1
	Count Rate Alarm 2
	Count Rate over-range
	Dose Rate Alarm 1
	Dose Rate Alarm 2
	Dose Rate over-range
	Dose Alarm 1
	Dose Alarm 2
	Dose over-range
	Low temperature alarm
	High temperature alarm

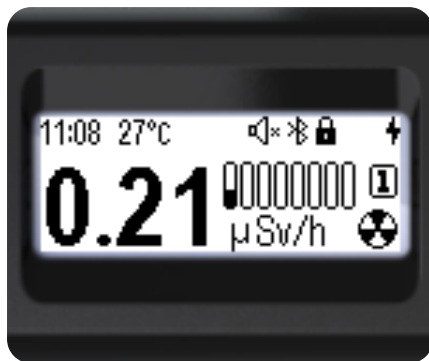
	Pulse mode indicator
	Current mode indicator

Note: on Radiacode Zero, the battery percentage is displayed next to the graphical battery icon.

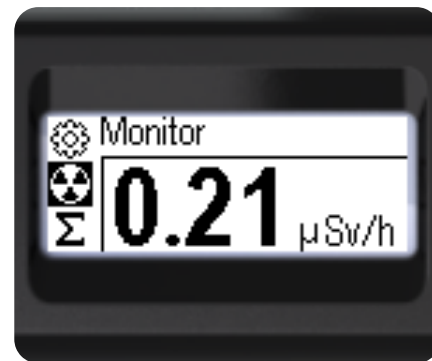
Menu item icons

Icon	Item	Description
	Settings	Device settings menu
	Monitor	Current dose rate or count rate display
	Dose	Accumulated photon radiation dose (gamma and X-ray)
	Search	Search mode — count rate displayed as a graph
	Power off	Turn off the device
	Device info	Serial number and firmware version

Menu navigation



- Briefly press the round button to enter the menu.
- At the top — the name of the current menu item (e.g. "Monitor").
- Menu item icons are arranged vertically.
- The active item is highlighted in negative — light on dark.



Six items at the main menu level. Three are visible at a time; scroll with the swing buttons for the rest. The menu is cyclic at all levels.

Cyclic order when pressing the "down" button:



To select an item — short-press the swing buttons. To confirm — short-press the round button.

To exit submenus, use [< Back] or [<< Menu quit].

Display modes

Modes overview

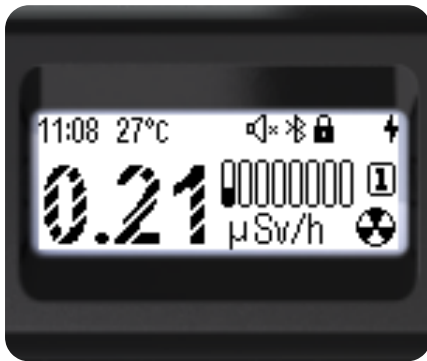
Radiacode Zero operates in a single mode — continuous data collection, accumulation, and analysis. At any time, one of the following display modes is available:

-  Monitor — dose rate and count rate estimation
-  Dose — accumulated dose estimation
-  Search — rapid source search

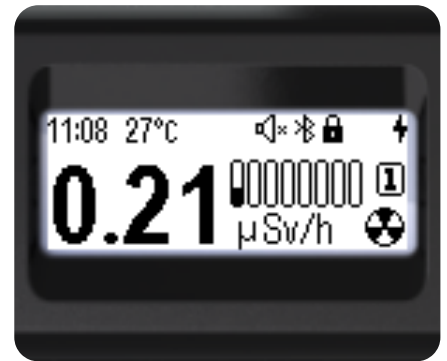
While operating, the device tracks all alarm threshold exceedances, informing the user of radiation hazards or changes in the environment.

Monitor

On startup, the device operates in this mode. All incoming data is accumulated and analysed. When a change in the radiation environment is detected, the device starts a new accumulation interval. When no changes are detected, it continues averaging to improve estimate reliability.



- When data is insufficient, the digits are hatched with light diagonal stripes.
- When the estimate is reliable, the digits are fully filled in.



Two operating ranges:

Pulse mode (1): 0.1 $\mu\text{Sv/h}$ to 1 mSv/h . Data comes from the scintillator by registering individual scintillation flashes, enabling estimation of low radiation levels and source searching. Energy response compensation uses a pre-programmed factory calibration function. Clicks and count rate are available — the device produces clicks on photon registration and displays CPS values.



Current mode (2): 1 mSv/h to 9 Sv/h . A different mechanism is used for real-time dose rate estimation based on an integral value. Clicks and detector count rate remain available, but the click tone is different in this mode. This mode is required for operation in high radiation fields.



Monitor mode screen:



Status bar (top, left to right):

13:03 27° $\gamma = 0.05$  

- Current time: hours, minutes
- Radiation sensor temperature
- Alarm sign for dose rate, dose, and count rate
- Sound indication status
- Bluetooth or USB connection status
- Swing button lock indicator
- Battery status

Lower area: dose rate or count rate value, graphical indicator, range number (1/2), units (Sv/h, rem/h or CPS/CPM), current display mode icon (Monitor).

Units can be selected via the menu: Sv/h or rem/h for dose rate display; CPS or CPM for count rate display.

The radiation intensity type (dose rate or count rate) can be selected via the menu or switched quickly using the device buttons.

Hotkeys:

- Short ▲ — toggle dose rate ↔ count rate (pulse mode only)
- Long ▲ — toggle sound indication on/off
- Short ▼ — toggle photon clicks on/off (pulse mode only, and only when sound is on)

When alarm thresholds are exceeded — pulsing icons appear:

Dose rate:

Alarm 1 – ; Alarm 2 – ; Over-range – 

Count rate:

Alarm 1 –  ; Alarm 2 –  ; Over-range – 

Dose

Mode for displaying the accumulated dose.



Status bar:

6d 19:20 γ = μ S Ψ Σ $\rightarrow$

- Time since dose accumulation started: days, hours, minutes
- Radiation sensor temperature; alarms; sound; connection; lock; battery

Lower area: dose value, graphical indicator, range number, units (Sv or rem), mode icon.

Hotkeys:

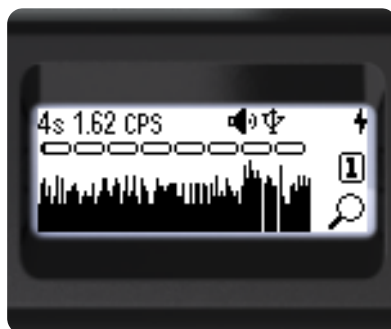
- Long ▼ — reset (zero) the accumulated dose
- Long ▲ — toggle sound on/off

When a dose alarm threshold is exceeded:

Alarm 1 — Σ ; Alarm 2 — Σ ; Over-range — Σ

Search

Graphical mode for an operational search for a source or an area with an elevated radiation level.



Status bar:

4s 8.00 CPS 🔊 🔌 🔒 🔋

- Averaging time per bar: ½, 1, 2, 4 seconds
- Current count rate value; units (CPS/CPM)
- Alarms; sound; connection; lock; battery

Lower area: graphical count rate display, search graph, range, mode icon.

Hotkeys:

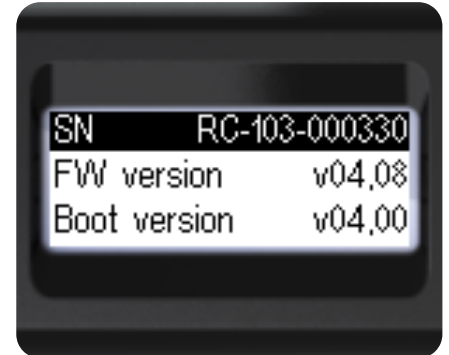
- Short ▲ — decrease averaging time
- Short ▼ — increase averaging time
- Long ▼ — clear screen, start new search session
- Long ▲ — toggle sound on/off

Device info

Brief information: model, serial number, firmware version, bootloader version.



- Device model and serial number.
- Firmware version.
- Bootloader version.



Alarm system

How alarms work

Alarm sources: current count rate value, current dose rate value, and accumulated dose value. Three alarm thresholds are defined for each of these sources.

If the current count rate, dose rate, or dose value crosses any threshold from below, an Alarm Event is triggered: first threshold — Alarm 1; second threshold — Alarm 2; upper scale limit — Over-range.

The first and second threshold values for each source are set in the device settings and can be changed at the user's discretion. The third threshold — the upper scale limit — cannot be changed via the menu.

The device continuously checks current values against the thresholds. Exceeding any threshold puts the device into an Alarm State.

Each Alarm Source determines one of 4 states:

- Normal — value below the first threshold (no alarm)
- Alarm 1 — value above the first threshold but not above the second
- Alarm 2 — value above the second threshold but not above the third
- Over-range — value above the third threshold, beyond the measurement range

Exceeding the upper count rate threshold causes unreliable dose rate estimation. In this case, the upper dose rate threshold is also considered exceeded.

When any alarm threshold is exceeded, the corresponding alarm is activated. If vibration and sound are enabled, the device will vibrate and emit the alarm sound. To stop the sound and vibration, short-press the round button to acknowledge the alarm signal. The device will continue to indicate the threshold exceedance with a flashing icon. To stop a dose alarm, reset the dose or change its alarm threshold.

Each Alarm Event has associated Alarm Signals: a sound signal and a vibration signal. Sound and vibration Alarm Signals can be independently enabled/disabled in Radiacode Zero settings for each level of each alarm source. On an Alarm Event, the device activates the signals permitted in settings. Playback can be stopped with a short press of the round button. On the next Alarm Event, the corresponding signal will sound again.

Alarm State indication includes:

- Red LED flashes (Range 1 only)
- Alarm icons on the display status bar
- Unacknowledged alarm status line

Icon	Description
	Count Rate Alarm 1
	Count Rate Alarm 2
	Count Rate over-range
	Dose Rate Alarm 1
	Dose Rate Alarm 2
	Dose Rate over-range
	Dose Alarm 1
	Dose Alarm 2
	Dose over-range
	Low temperature alarm
	High temperature alarm

LED signals can be toggled on/off in settings (Range 1 only).

Behaviour when buttons are locked:



With the buttons locked, the status bar shows “Alarms:” and the icons of the maximum unacknowledged alarm levels since locking. Long press on the round button acknowledges the alarms and unlocks the buttons.

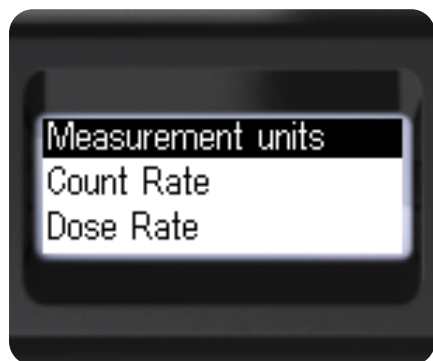
If Alarm Events occur while the menu is displayed, the alarm summary will be shown upon exiting the menu. The swing buttons will then be locked.

With the swing buttons unlocked and a display mode active, the status bar shows the current alarm level icons for each source, alternating.

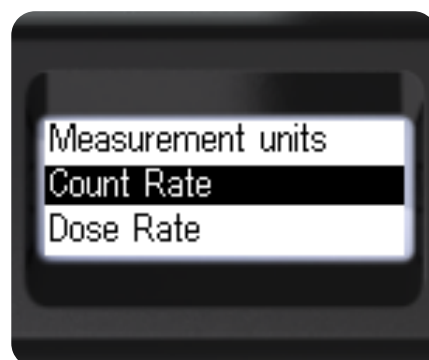
Setting alarm thresholds

For each of the three quantities (count rate, dose rate, accumulated dose) two alarm thresholds can be set. The procedure is the same.

Count rate — alarm levels



- Navigate to [Count Rate]. Enter the submenu.



- Enter [Alarm 1]. Select a digit, change its value. Set all digits.



- Select [Enter] or [Esc]. Long-press to confirm.





- Navigate to [Alarm 2]. Same procedure.



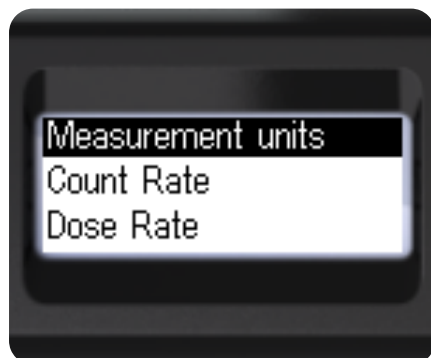
- [Enter] or [Esc]. Long-press to confirm.



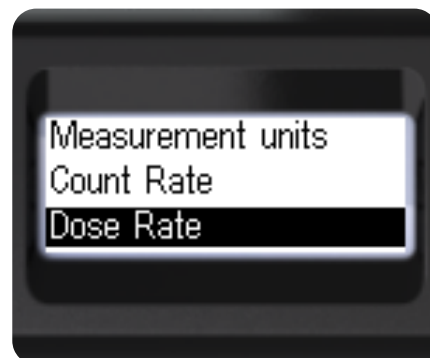
- To go back: [< Back] or [<< Menu quit].

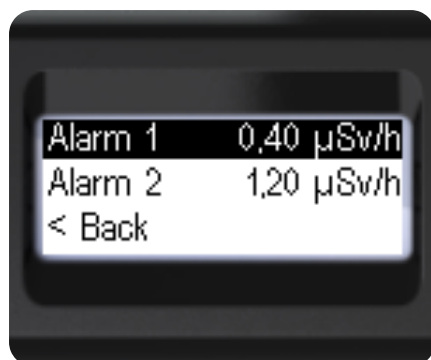


Dose rate — alarm levels



- Navigate to [Dose Rate]. Enter the submenu.

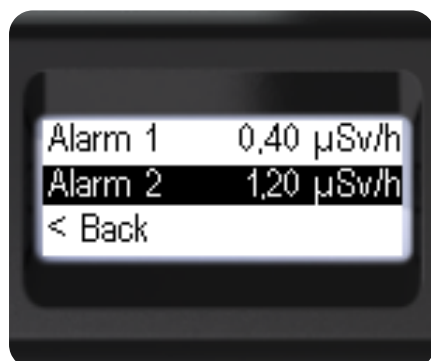




- Enter [Alarm 1]. Select a digit, change its value.



- [Enter] or [Esc]. Long-press to confirm.



- Navigate to [Alarm 2]. Set values.



- [Enter] or [Esc]. Confirm.

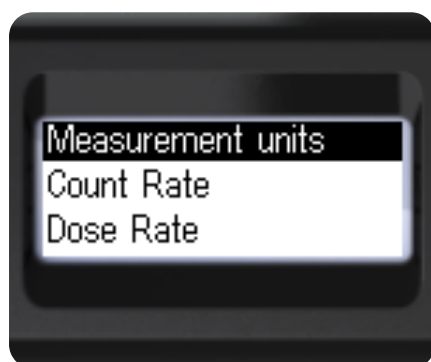




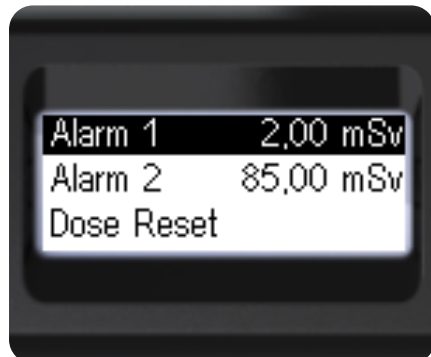
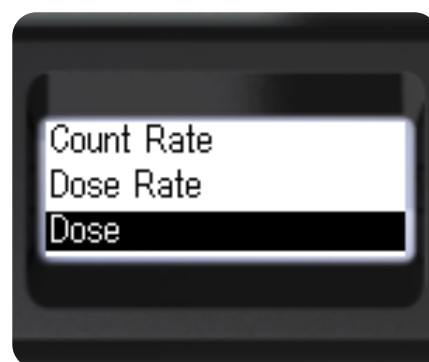
- To go back: [< Back] or [<< Menu quit].



Dose — alarm levels



- Navigate to [Dose]. Enter the submenu.

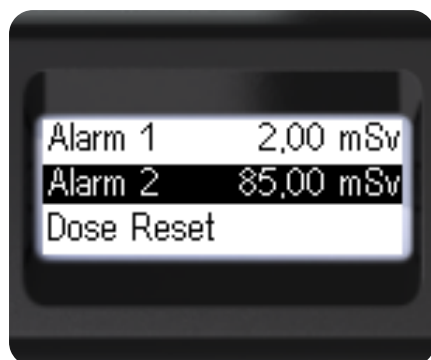


- Enter [Alarm 1]. Select a digit, change its value.



- [Enter] or [Esc]. Confirm.





- Navigate to [Alarm 2]. Set values.



- [Enter] or [Esc]. Confirm.



- To go back: [< Back] or [<< Menu quit].



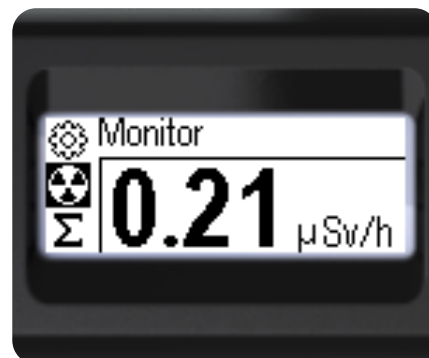
Settings

Settings menu

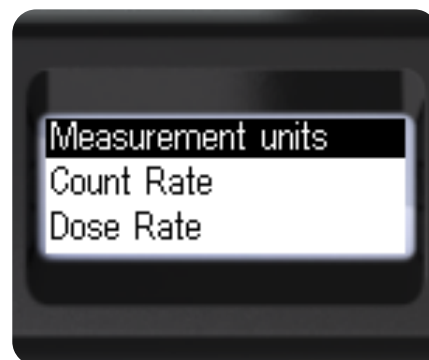
All settings are accessible via the menu: round button →  Settings.



- Briefly press the round button to enter the menu.

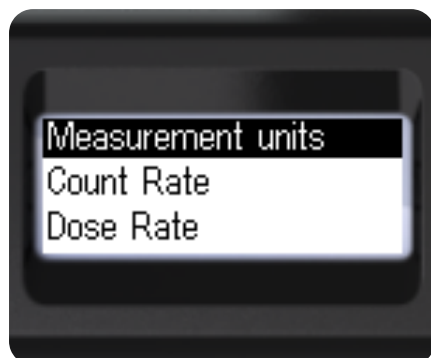


- Navigate to the Settings item. Confirm.

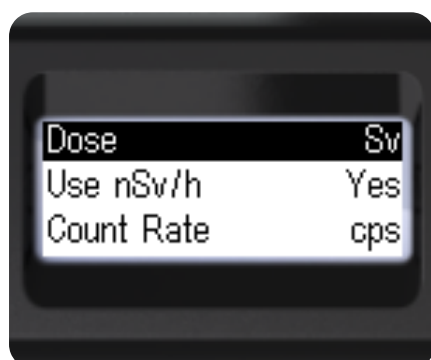
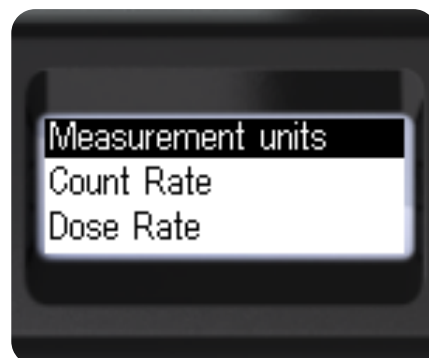


Use the swing buttons to navigate to the desired item. Exit via [< Back] or [<< Menu quit].

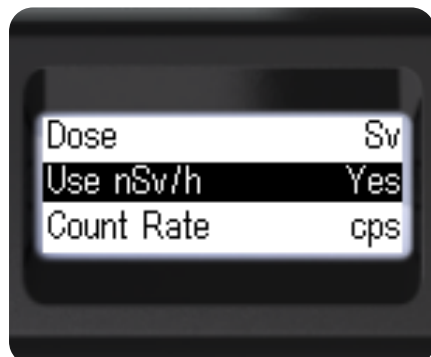
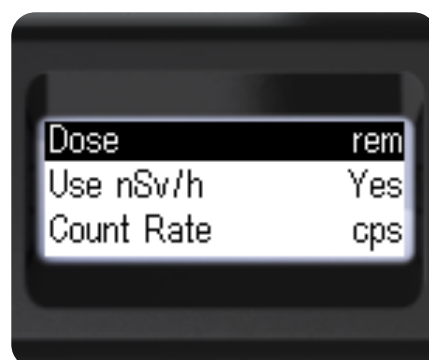
Selecting units of measurement



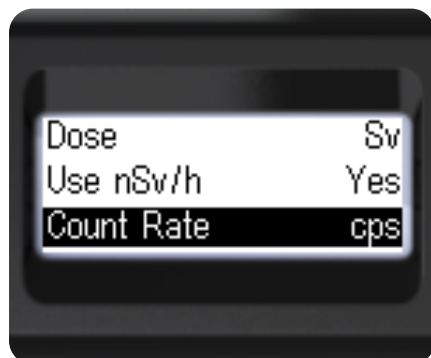
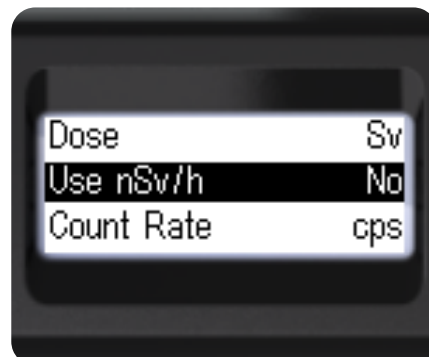
- Navigate to [Measurement units]. Enter the submenu.



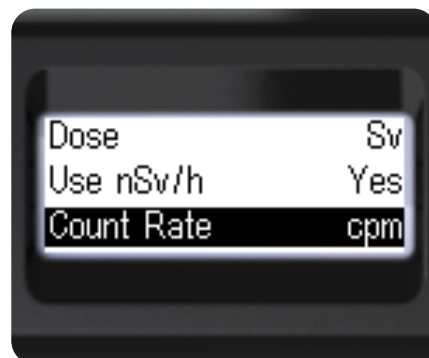
- Select dose rate units: Sv — sievert or rem. Move focus to [Use nSv/h].

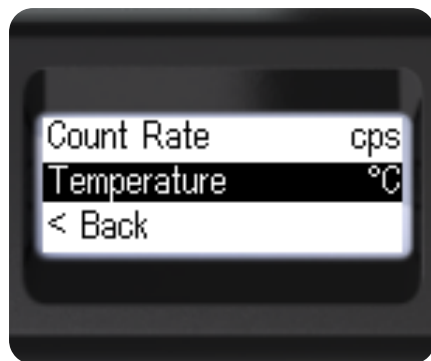


- Choose whether to use nSv/h when Sv is selected: [Yes] or [No]. Move focus to [Count Rate].

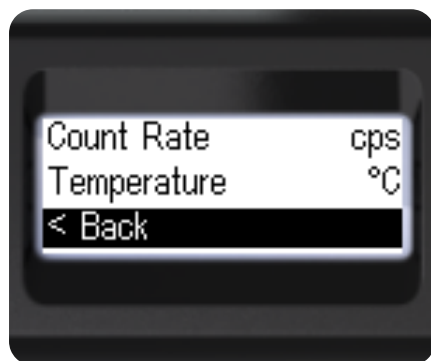
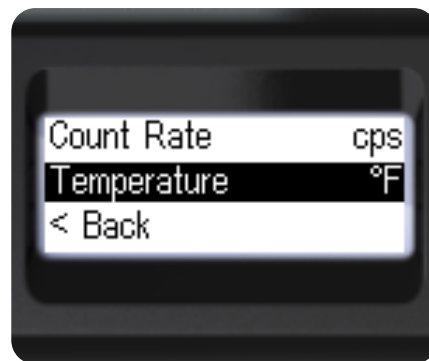


- Select count rate units: CPS — counts per second or CPM — counts per minute.





- Select temperature units: °C — Celsius or °F — Fahrenheit.

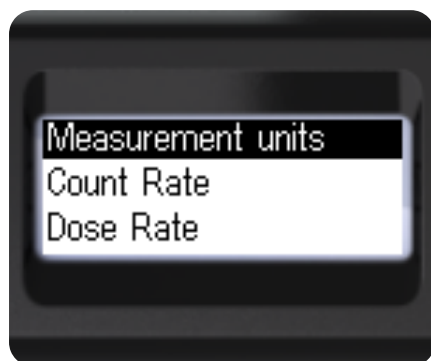


- To go back: [< Back] or [<< Menu quit].

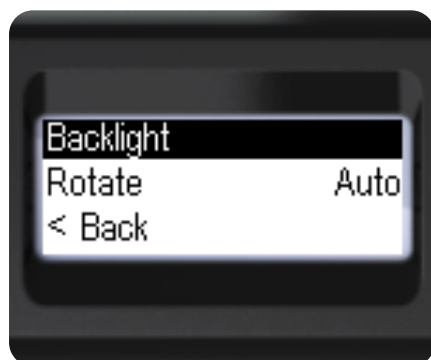
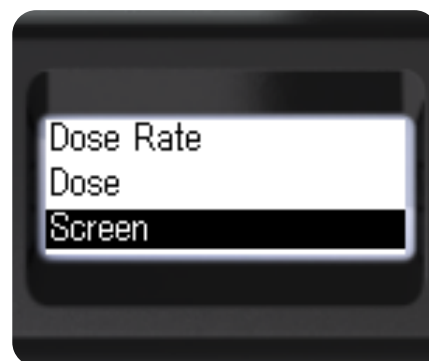


Screen settings

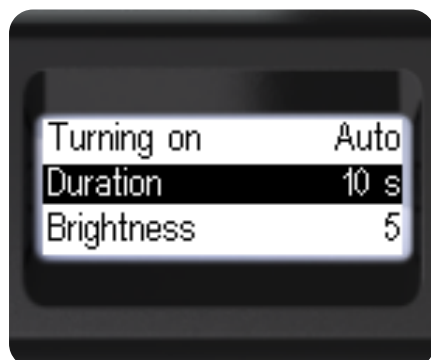
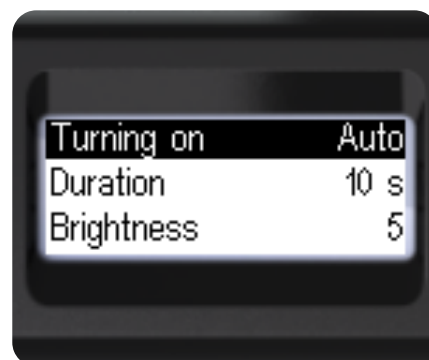
Backlight brightness: 0–9 (default 5). Lower levels reduce battery consumption. Duration: 5, 10, 15, 30 s and 2, 5 min. Mode: Auto / By button / Never. Orientation: Auto / Right / Left.



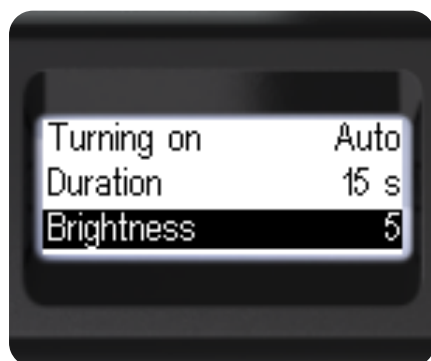
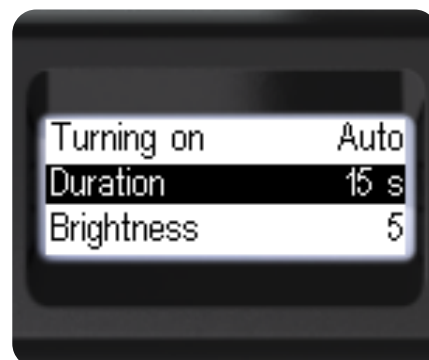
- Navigate to [Screen]. Enter the submenu.



- Enter [Backlight]. Select mode: [Auto], [Never] or [By button].



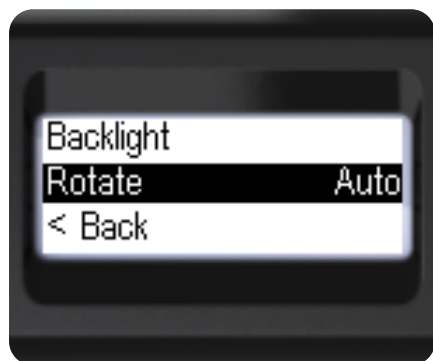
- Select duration: 5, 10, 15, 30 s or 2, 5 min.



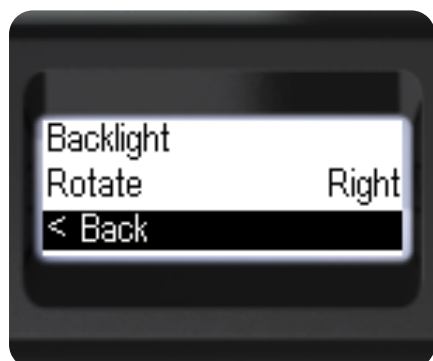
- Select backlight brightness from 0 to 9.



- [**< Back**] to go back.



- Navigate to [Rotate]. Select: [Auto], [Right] or [Left].



- [**< Back**] to go back.

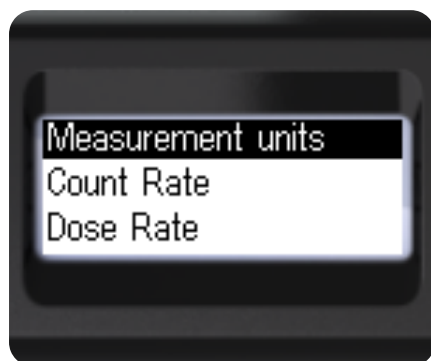


- To go back: [**< Back**] or [**<< Menu quit**].

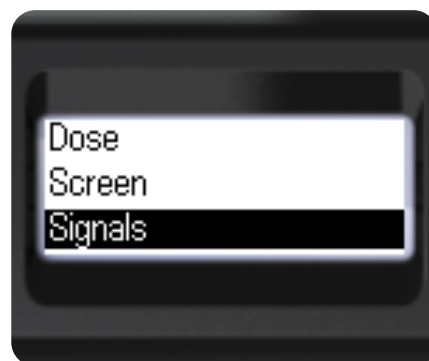


Signals — sound, vibration, light

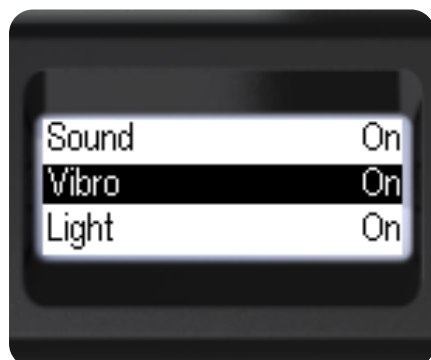
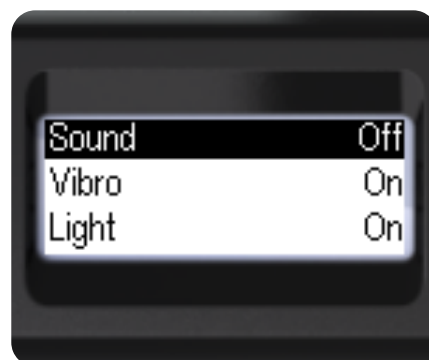
Combined interface: display, buttons, sound emitter, LEDs, vibration motor. Individual settings are available for alarm sounds, button response, and clicks.



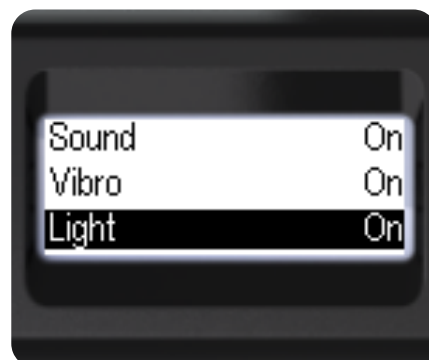
- Navigate to [Signals]. Enter the submenu.



- [Sound]: [On] — all enabled sounds, or [Off] — only search and out-of-scale signals remain.



- [Vibro] and [Light]: [On] or [Off].

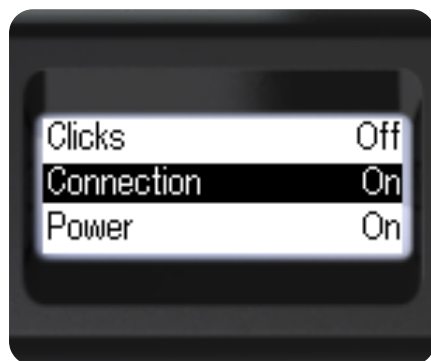
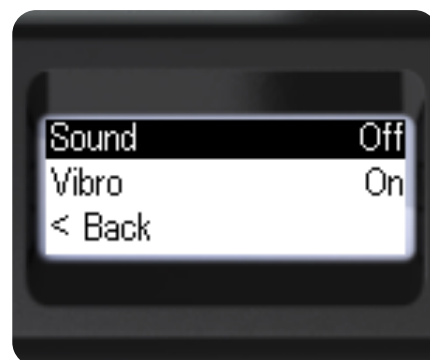


- [Clicks] — gamma and X-ray photon registration clicks. [On] or [Off].

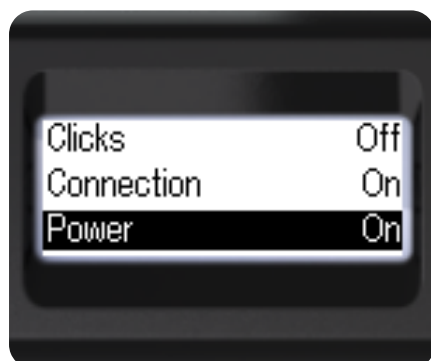




- [Buttons]: [Sound] or [Vibro] – select the response type.



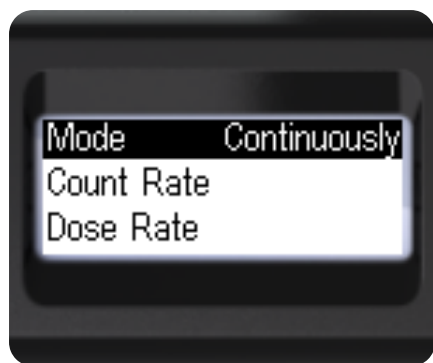
- [Connection] – connect/disconnect signal. [On] or [Off].



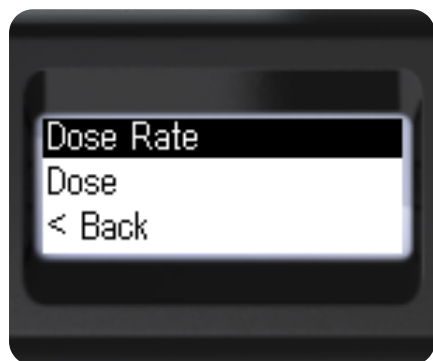
- [Power] – turning on/off sound. [On] or [Off].



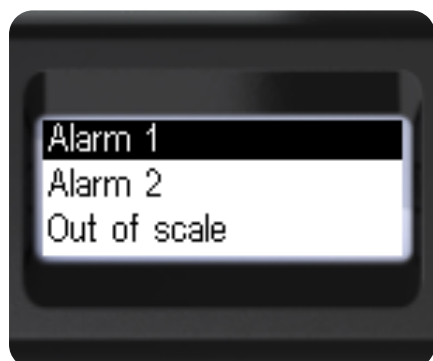
- To configure alarm signals: [Alarms]. Confirm.



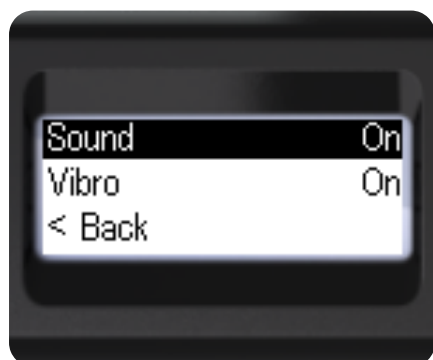
- Indication mode: [One-shot] or [Continuously].



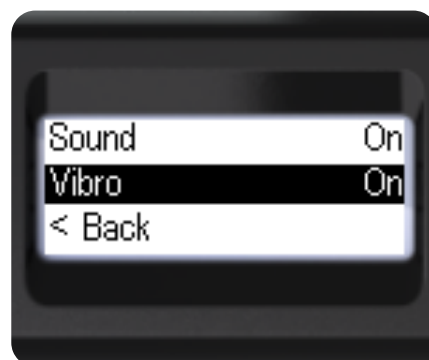
- Select a channel, e.g. [Dose Rate]. Confirm.



- Select level: [Alarm 1] or [Alarm 2]. Confirm.



- [Sound] or [Vibro]: [On] or [Off].

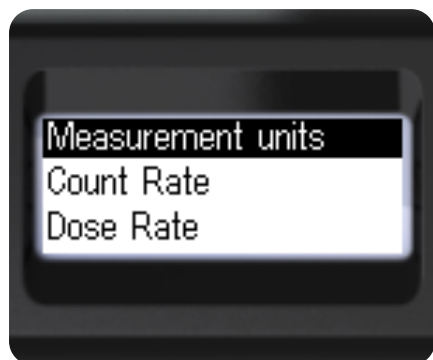




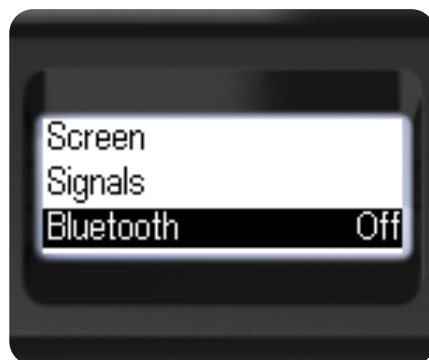
- To go back: [< Back] or [<< Menu quit].



Bluetooth



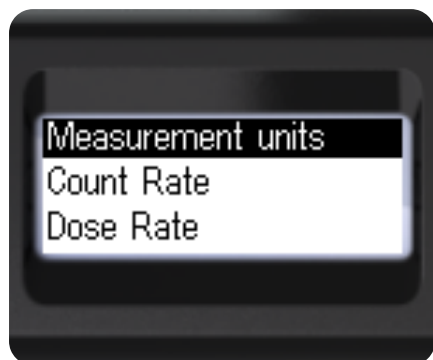
- Navigate to [Bluetooth].
Select [On] or [Off].



- To go back: [< Back] or
[<< Menu quit].



Selecting the menu language



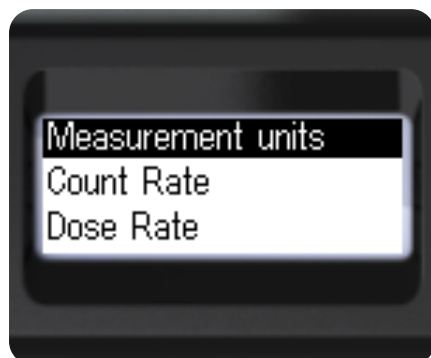
- Move focus to [Language]. Select your preferred interface language.



- To go back: [< Back] or [<< Menu quit].



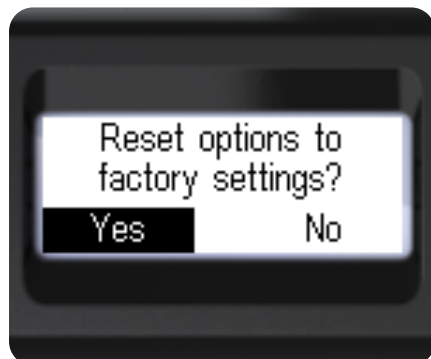
Reset to factory settings



- Navigate to [Factory settings]. Confirm.



- Select [Yes] or [No].



- Long-press to confirm. If [Yes] — reset and return.

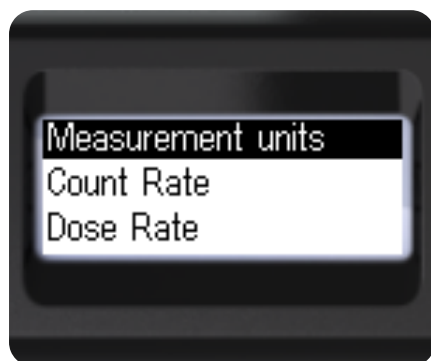


- To go back: [< Back] or [<< Menu quit].

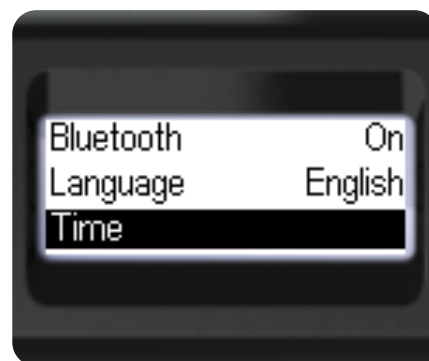


Setting the time

When connected to a smartphone or computer, the time is set automatically. Manual setting via the menu:



- Navigate to [Time]. Confirm.



- Select an input field. Change the value with the swing buttons. Hold for fast change.



- [Enter] or [Esc]. Long-press to confirm.



- To go back: [< Back] or [<< Menu quit].



Connecting to a smartphone and computer

Smartphone

Install the RadiaCode app: Android — Google Play or the RadiaCode website at www.radiacode.com/downloads (APK); iOS — App Store.

Bluetooth connection: enable Bluetooth on the device (Settings → Bluetooth → On) and select the device in the app.

USB OTG connection (Android only): connect the device using a cable and adapter, then grant the app access.

A detailed description of the app interface is built into the app.

With external power connected, the device is accessible via Bluetooth or USB whether or not it is powered on. This allows remote turning on/off.

When connected to a smartphone or PC, accumulated data is transferred to the external device, and new incoming data is sent directly without being saved in the device internal memory.

PC (Windows)

Install the RadiaCode program from the RadiaCode website. Connect the device with a USB Type-C cable. The program lets you view data, control the device and transfer the measurement log. Detailed help is built into the program.

With external power connected, the device is accessible via USB whether or not it is powered on. This allows remote turning on/off.

Maintenance

Battery charging

Connect the USB cable to the port on the end of the device ([4] in the overview) and to a charger (5 V, ≥ 0.5 A) or computer USB port. Leave the device connected until charging is complete.

Blue indicator [7] — charging. The screen shows the charging icon 

When complete, the blue indicator goes out and the icon changes to external power 

- The battery can be recharged or charging interrupted at any level

Check the charge level by the battery icons ; the percentage shown next to them updates in real time

If the battery indicator  is empty — connect the device to a charger

To ensure proper charging conditions and a long battery service life, charging is blocked when the device temperature is above +40 °C or below 0 °C.

For charging, use only USB chargers rated at 5 V and at least 0.5 A, or a computer USB port. Connecting to an unsuitable power source can damage the device. Damage caused by improper charging is not covered by the manufacturer's warranty.

If the battery is fully discharged, the device may not respond to turning on. Charge the battery first. If the battery does not charge, connect the charging cable, then disconnect and reconnect it. The device will then be ready for operation.

Firmware update

The device is constantly improved; the firmware is updated regularly. Current version — in the "Device info" menu.

iOS over Bluetooth:

- Download and install the RadiaCode app from the App Store or via the link
- Launch the app and grant it Bluetooth access
- In the Devices list, select your device and connect to it
- Once connected, open Control Center — the button is in the upper-right corner of the screen
- If a firmware update is available, the Update button in the Firmware section becomes active. Tap it to start the update
- During the update, a red LED will glow on the device
- Wait for the process to finish. Do not close the app or turn off the device until the update is complete

Android over Bluetooth:

- Install RadiaCode from Google Play or via the link
- Launch → menu (the three-horizontal-line button in the upper left) → "Devices"
- Select the Bluetooth connection interface and confirm by pressing [OK]
- After connecting, confirm the update. A red LED will glow during the update process

Android over USB OTG:

- Connect the device to the smartphone using a cable and adapter
- Allow the RadiaCode app to use the connected device
- Launch → menu → "Devices" → USB interface → [OK]
- Confirm the update and wait for it to finish

PC (Windows):

- Download and install RadiaCode from www.radiacode.com/downloads
- Connect the device, turned on, via USB Type-C directly to a computer port
- If an update is available — confirm; wait for it to finish

Do not turn off the device or break the connection (USB or Bluetooth) until the process is complete! Interrupting the firmware update may cause device failure. To restore operation, contact the service centre.

Troubleshooting

Problem	Cause	Solution
Does not turn on standalone	Battery discharged	Charge the battery
Works only with external power	Battery faulty	Contact customer support
Vibrates, icon on screen:  or 	Battery discharged	Charge the battery
Charge below 100% after disconnect	Not fully charged	Wait until the blue LED goes out
Charge below 85% after 15 min	Battery capacity degradation	Contact customer support
Not charging (no LED)	Temperature above +40 °C / below 0 °C	Ensure proper temperature
Not charging	Deep discharge	Reconnect the cable. Do not allow full discharge
Continuous vibration + blue LED	In bootloader mode	Contact customer support
Monitor shows 0.00 CPS	Device malfunction	Contact customer support
"Instrument not calibrated"	Missing calibration data	Contact customer support
Shuts off without notification	Static electricity	Protect from electrostatic discharge
"Hardware error [1XX]"	Non-volatile memory error	Restart; if recurring — contact service

"Hardware error [2XX]"	Bluetooth module error	Restart; if recurring — contact service
"Hardware error [3XX]"	Accelerometer error	Restart; if recurring — contact service
"Hardware error [4XX]"	Optical sensor error	Restart; if recurring — contact service
"Hardware error [5XX]"	Thermometer error	Restart; if recurring — contact service
"Hardware error [6XX]"	Options state error	Restart; if recurring — contact service
"Hardware error [7XX]"	Charger error	Restart; if recurring — contact service

In case of a malfunction, contact the manufacturer's customer support. For any other issues, please report them to the support team.

