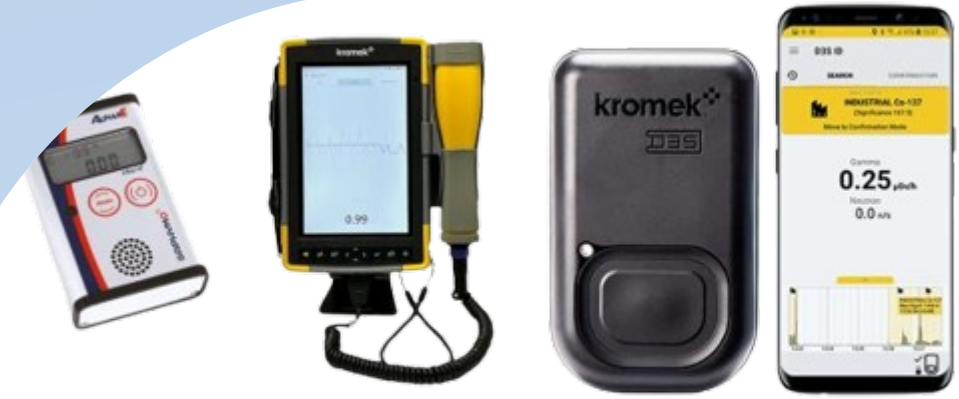
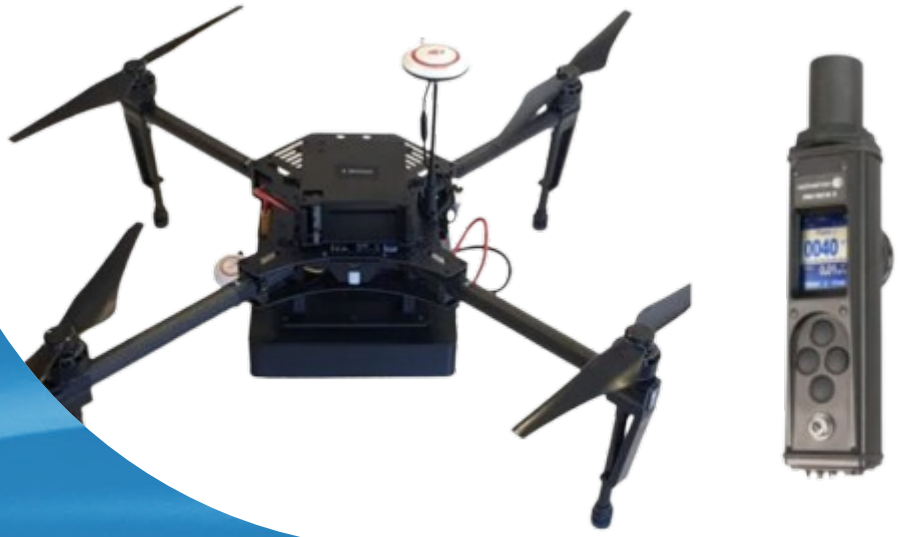
PORTABLE ISOTOPE IDENTIFIERS





peo DETECTION

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Partner **BSI**

Baltic Scientific Instruments (BSI) is an OEM manufacturer based in Riga, Latvia, dedicated to the development and production of advanced spectrometric and detection equipment. With decades of experience and roots in the former Research Institute for Radioisotope Apparatus (RNIIRP), BSI provides cutting-edge technologies for nuclear power, environmental monitoring, security, medicine, and scientific research.
The company specializes in HPGe, Si, CdZnTe/CdTe, and scintillation detector systems, known for their accuracy, stability, and performance in demanding analytical environments.
Through continuous innovation, strict quality assurance (ISO 9001:2015), and strong international collaboration, BSI supports customers worldwide in achieving precise and reliable radiation measurement and analysis.

Product offering

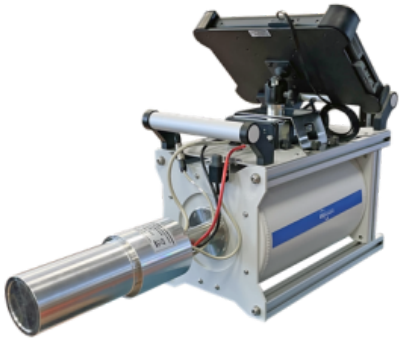
Hand-held Integrated Gamma Spectrometer

← Back to partner

Radiation Detection › CZT & Gamma Cameras

Hand-held Integrated Gamma Spectrometer

Hand-held Integrated Gamma Spectrometer with an integrated HPGe detector, preamplifier, multichannel analyzer, batteries, and software offers relatively compact, portable solution for high-resolution gamma-ray analysis. Its all-in-one design enhances field usability, requiring no external components for setup.



Application

Hand-held Integrated Gamma Spectrometer is ideal for nuclear safety, environmental monitoring, radiological emergency response, CBRN and waste characterization, it ensures rapid deployment and reliable data acquisition. The integrated system minimizes cabling, reduces noise, and simplifies operation, making it highly efficient for both laboratory and on-site measurements.

Features

- Integrated HPGe Detector – High-purity germanium detector ensures excellent energy resolution for precise gamma spectroscopy
- Embedded Digital Multichannel Analyzer (MCA) – Enables real-time spectrum acquisition and processing without external electronics
- Internal Battery Operation – Offers several hours of autonomous use for field measurements
- Compact All-in-One Design – Reduces cabling and simplifies deployment in any environment
- On-board ruggedize display – large and bright to fit the whole spectrum or a part of it since software is adopted for “mobile view mode”
- Analytical Spectroscopy Software – Supports spectrum analysis, nuclide identification, and reporting
- Advanced Spectroscopy Software – allows applying Monte-Carle simulation results to the analytical software to make sure correct measurement result in case of complex geometry of the measured object

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Partner Else Nuclear

ELSE NUCLEAR S.r.l. is an Italian OEM company specializing in advanced radiation-detection and environmental-monitoring systems for nuclear safety, industry and research.

Product offering

B-RAD

FOOMON

THYMON

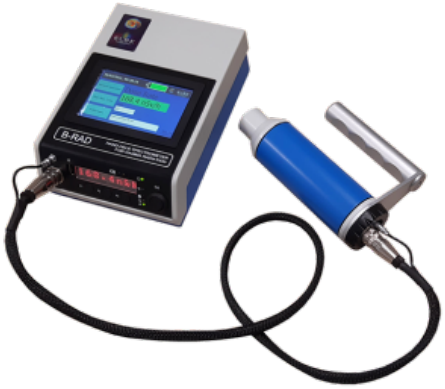
HERMES GSU

← Back to partner

Radiation Detection › Portable Isotope Identifiers

B-RAD

B-RAD is a hand-held radio-isotope identifier (RIID) for gamma dose rate survey and spectrometry measurements, specifically designed to work in magnetic fields up to 3 T. For comparison, conventional devices fail to operate at intensities as low as 0.1 T.



Light and compact, B-RAD is ideal for radiation surveys and for local measurements of contamination or residual radioactivity in hot spots. The built-in software and algorithm allow performing accurate gamma spectrometry and dose rate measurement with a single instrument.

B-RAD employs a high sensitivity $LaBr_3(Ce^{3+})$ crystal directly coupled to a SiPM matrix. Its excellent scintillation properties, high energy resolution (3.3% FWHM at 662 keV) and fast response, together with the built-in pile-up and dead-time correction algorithms, allow the device to cover an extremely wide dose rate range (100 nSv/h to > 20 mSv/h).

This technology has been originally developed at CERN (*) and has become the standard for radiation surveys in the Large Hadron Collider (LHC) experiments. It is commercialized under an official license granted by CERN, with the “CERN Technology” label.

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Radiation Detection › Environmental Monitoring

FOOMON

FOOMON is a portable fully-integrated instrument specifically conceived for screening of I-131, Cs-134 and Cs-137 accumulated in food samples. Its “on-the-field” design allows deploying the device in any kind of situation, such as routine campaigns or emergency procedures.

The whole device is self-contained in a portable high-IP-grade technical case, for an overall weight < 25 kg. The food samples are to be placed in 500 ml Marinelli beakers, which then are lodged inside a 1 cm thick lead shielding well upon the detector’s end cap. The complete setup and deployment of the system requires less than 5 minutes.

The User can manage FOOMON through the user-friendly control and analysis software installed on the embedded panel PC, automatically calculating the specific activity and the Minimum Detectable Concentration (MDC) of the sample (in Bq/kg). Data are stored locally and can be analysed and downloaded with dedicated software routines.

The measured activity concentration is compared with isotope-specific and food-group-specific alarms. In the case of an alarm, the measurement output is clearly labelled and the alarm status is clearly displayed on the software, which also activates the acoustic alarm.

The counts-to-activity-concentration conversion coefficients are calculated by means of dedicated Monte Carlo calculations.

The MDC achievable in 1 minute, with an average indoor background (150 nSv/h), is as low as about 150 Bq/kg for Cs-137 and Cs-134, and about 90 Bq/kg for I-131. Under the same conditions, MDC as low as about 30 Bq/kg for I-131, and about 40 Bq/kg for Cs-134 and Cs-137, can be achieved in about 10 minutes.

If enabled, the automatic background subtraction subroutine allows further lowering MDC and measurement uncertainty without increasing the counting time.

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Radiation Detection › Environmental Monitoring

THYMON

THYMON is a compact NaI(Tl)-based detector specifically conceived to fast, yet reliably, measure I-131 contamination in thyroid. Its compactness, ruggedness, light-weight, together with its simple and intuitive built-in software interface, make the device perfectly suited for emergency screening applications. The instrument can be used either hand-held or hands-free. The instrument is composed by three main subparts:

- Detector probe: a 1.5” x 1.5” collimated NaI(Tl) crystal coupled to a SiPM matrix and extremely compact readout electronics and MCA
- Extendable support: designed as both table-top and standalone, providing the possibility of hands-free operation
- Control tablet: IP65 water- and dust-proof 8” capacitive screen, wired-connected to the probe

The mechanics of the probe is specifically conceived to ensure the best alignment between the probe and the thyroid, guaranteeing excellent crystal-to-thyroid alignment, and reducing positioning uncertainties.

The control and analysis software installed on the control tablet is designed to be simple and intuitive, yet advanced and comprehensive. This is accomplished by combining a simple and intuitive interface with advanced calculation routines, which run automatically as the measurement start, without the need of operator intervention.

Data are stored locally on the tablet internal memory, and can be analysed and downloaded with dedicated software routines.

The automatic I-131 activity calculation is given for pre-defined age groups: 1 yo, 5 yo, 10 yo, 15 yo (Adult Female), Adult Male. Counts-to-activity conversion coefficients are calculated by dedicated Monte Carlo simulations based on detailed detector and thyroid numerical models. The simulations are always validated for the specific system through experimental tests performed with reference radioactive sources.

The activity is compared to 2 User-defined threshold levels, each defined per each age group, following the two Action Levels logic.

MDA as low as about 100 Bq can be achieved in 2 min screenings. The MDA can be further lowered by enabling the background subtraction option.

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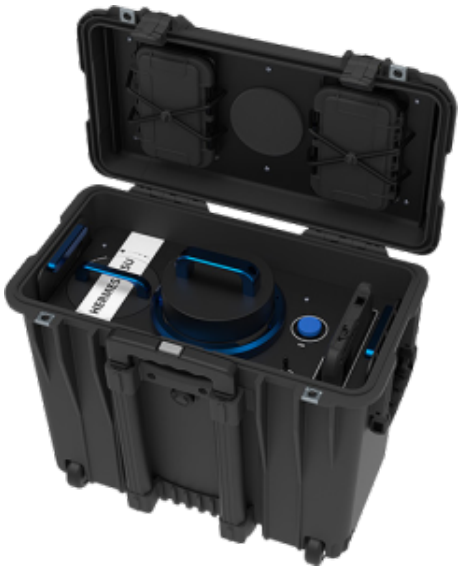
Radiation Detection › Environmental Monitoring

HERMES GSU

HERMES GSU is a portable gamma spectrometry system designed for rapid and precise in-field analysis of environmental samples. As part of the HERMES product line, it features a rugged, modular, and self-contained design housed in a high IP-rated technical case, ensuring durability and reliability in demanding conditions.



HERMES GSU quantifies isotope activity concentrations based on a rich built-in, yet fully-editable, isotope library. Its portability and autonomous operation make it ideal for both routine monitoring and emergency response scenarios.

Samples can be directly collected from the field, placed in 500 ml Marinelli beakers, and inserted into the built-in 1 cm lead-shielded well, minimizing background radiation for immediate, on-the-spot, low MDC analysis, and enhancing measurement accuracy and sensitivity. The system automatically calculates activity concentrations, making it a powerful tool for in-situ, laboratory-grade measurements.

HERMES GSU features advanced routines for gain stabilization, dead time correction, and automatic energy calibration (relying on natural background only, thus not requiring any radioactive reference source).

Efficiency calibration curves are generated using validated Monte Carlo simulations. Predefined efficiency curves are available for different sample matrices, including soil, water, and foodstuffs, across various densities. Custom calibration curves can be provided upon request.

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Partner Kromek

Kromek Group plc is a global leader in advanced radiation detection technologies, specializing in compact, high-resolution solutions for security, defense, nuclear, and research applications. Leveraging proprietary Cadmium Zinc Telluride (CZT) semiconductor technology, Kromek delivers a versatile portfolio that includes handheld monitors, portable isotope identifiers, CZT-based gamma cameras, and laboratory-grade spectrometers.

Product offering

GR Series Gamma Spectrometers

D5 RIID

D3S ID

RayMon

AARM

Radiation Detection › CZT & Gamma Cameras

GR Series Gamma Spectrometers

A family of small and light CZT-based Gamma detector spectrometers!

The Kromek GR family is a range of CZT-based high-performance Gamma spectrometers. They are completely self-contained, with built-in preamplifier, shaping amplifier, baseline restorer, pulse height digitizer and HV supply. The digitised pulse heights of detected Gamma signals are sent to a computer via the USB. The unit is powered entirely from the USB bus, so no external power supply is needed.

Can be used for all Gamma radiation detection needs either straight out of the box or built into your own devices. The GR Gamma detectors can be mounted side by side in an array to give you coverage of a large area.

GR1/GR1+ Gamma spectrometer

- Perfect for most uses
- Energy resolution: < 2.5% FWHM @ 662 KeV
- USB output only
- 1 cm cubed CZT detector
- The plus model is available for those that need higher resolution:
- Energy resolution: <2.0% FWHM @ 662 KeV

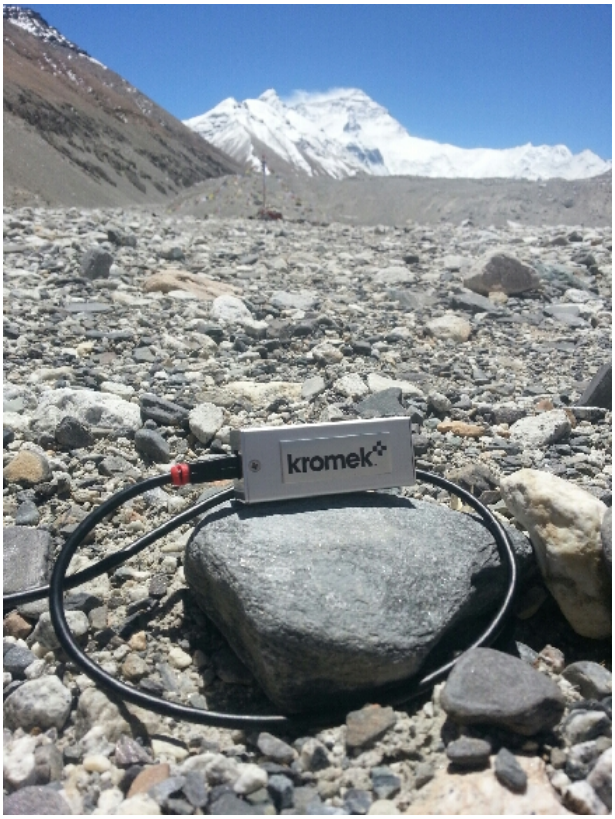
GR1-A/GR1-A+ Gamma spectrometer

- For those that need extra outputs channels
- Energy resolution: < 2.5% FWHM @ 662 keV
- USB output
- Three MCX connectors that provide energy and timing outputs and gate inputs
- MultiSpect Analysis spectroscopy software included in the price
- 1 cm cubed CZT detector
- The plus model is available for those that need higher resolution:
- Energy resolution: <2.0% FWHM @ 662 KeV

GR05 Gamma spectrometer

- For use in a high-flux environment
- Energy resolution: < 2.5% FWHM @ 662 keV
- Max dose rate approximately 10mSv/hr
- USB output
- Smaller 0.125 cm cubed CZT detector

- For use in high-count (high-flux) environments



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Radiation Detection › Handheld Monitors

D5 RIID

The D5 RIID provides a unique high performance and versatile radiation detection device in a wearable package for military, homeland security, and industrial personnel.

The D5 RIID is a small, light, 3.5% resolution, wearable Radioisotope Identification Device (RIID) with an expansive radioisotope library and an ultra low false alarm rate. It continuously scans and accurately identifies radiological threats in real time, even in mixed source environments.

The D5 RIID combines small form factor with powerful radiometric performance and enhanced sensitivity at a medium resolution of 3.5%. The D5 RIID has an area efficiency which is 62% higher when compared with conventional RIIDs.

D5 RIID Overview https://youtu.be/yi-uvoO5nFg

SCAN TO VIEW VIDEO

kromek D5 RIID

D5 RIID is the smallest, lightest with the ultimate detection performance. It has a 3.5% resolution, with an expansive radioisotope library and an ultra low false alarm rate. It continuously scans and accurately identifies radiological threats in real time, even in mixed source environments.

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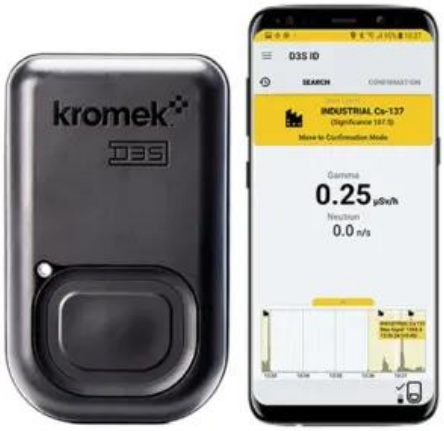
Radiation Detection › Handheld Monitors

D3S ID

A wearable, concealable Gamma and Neutron detector which puts the power of a RIID into a package the size of a Personal Radiation Detector (PRD). D3S ID is the new standard in portable radiation detectors.

The D3S ID is a powerful, wearable, unobtrusive and hands-free device which is continuously scanning for Gamma and Neutron radiation threats.



Kromek's D3S meets the data security expectations of governments, intelligence services, and safety authorities. The D3S comes standard with a secure smartphone (Android control), which contains the exclusive and secured Kromek detector software. The D3S is already frequently used in the United States, for example on fire trucks and ambulances or as an area mapping system with 1,000 detectors during a 'scavenger hunt'. In Europe, the D3S has been deployed during state visits and NATO consultations in recent years, to detect early radioactive threats that may be present in cargo, vehicles, buildings, other objects, and in the environment.

Features:

- Identifies 37 isotopes (17 more than the current ANSI standard)
- Identifies faster than a RIID
- Budget-friendly compared to other products in the market
- Small size, wearable, fits on belt
- Networkable

RayMon

RayMon

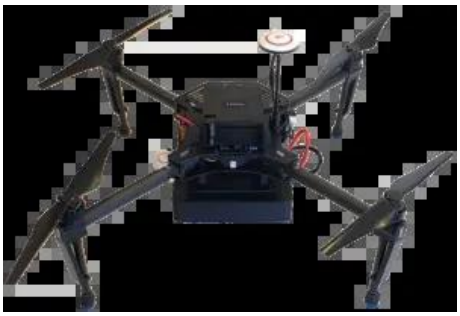
A powerful and rugged handheld gamma detector for high-resolution radioactive isotope identification. The RayMon10 is one of the most powerful and rugged handheld radiation monitors in the world. It can be used to detect, measure, and accurately identify gamma-ray emitting radionuclides, providing high-resolution isotope identification using the latest CZT solid-state detector technology. It is an all in one solution to your gamma radionuclide identification needs

It can output a variety of reports including date/time, user handheld ID, photo and audio note, GPS positioning, radiation spectra, and isotope identification.

Variations in normal operating conditions can often affect the performance of radio-isotope identification, the RayMon10’s advanced one cubic centimeter CZT coplanar grid detector provides more stable performance than scintillation-type detectors

AARM

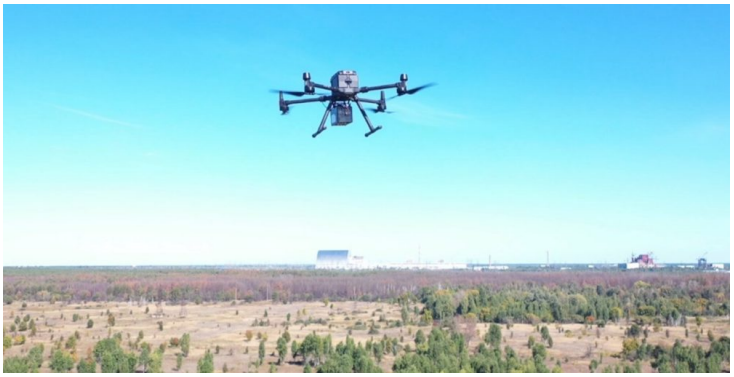
Real-time location, measurement, and mapping of radioactivity from the air with Kromek's drone-based payload!



When mounted to any multirotor drone model, Kromek's AARM payload system can be used to complete rapid, detailed radiological surveys over wide areas. Its advanced sensor system of integrated radiation and positional sensors allows isotopic fingerprinting, counts per second, and full spectral data to be collected and subsequently delivered to the user every second.

Data is also visualised in real-time in the form of a metre resolution radiation heat map on the AARM's iOS-based app. Hotspots and anomalies can be quickly identified from a safe distance, optimal for applications including, but not limited, to environmental surveys and monitoring, as well as enhancing situational awareness and rapid response in nuclear security applications.

Flexible detector and communications options are also available, adding to the versatility of the system. Cloud-based comms allow spectral data and counts per second to be viewed from anywhere in the world. Non-cloud-based options are also available, with onboard storage of data possible as well. The payload houses Kromek's proven radiation detection capabilities, with single or dual detector configurations of the GR1, SIGMA 50, TN15 or D3S. The system's large operating temperature range further expands the system's mission versatility, making missions possible anywhere in the world.



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Partner Polimaster

Polimaster is a global leader in radiation detection and monitoring solutions, offering a comprehensive suite of instruments designed to detect, identify, and measure ionizing radiation across various environments. Their product range includes handheld monitors, personal electronic dosimeters, portable isotope identifiers, portal monitors, and mobile detection systems, all engineered to meet the rigorous demands of security, emergency response, and industrial applications.

Product offering

PM1401K-3M Multipurpose Hand-Held Radiation Monitor/Identifier

PM1401K-3P Multipurpose Hand-Held Radiation Monitor/Identifier

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Radiation Detection › Handheld Monitors

PM1401K-3M Multipurpose Hand-Held Radiation Monitor/Identifier

PM1401K-3M model is a gamma-only radiation monitor without a neutron detector which is designed for quick and reliable measurement of gamma dose rate, detection of alpha, beta, and gamma sources, measurement of alpha and beta radiation flux density, acquisition of gamma spectra, identification of radioisotopes, and measurement of food/soil contamination with 137Cs

Features

- Storage of up to 10000 events and 1000 spectra
- Audible, visual and external vibration alarm
- Categorization of identified radionuclides
- Shock and water resistant IP65 case
- Adjustable radionuclide libraries
- USB communication with PC
- Built-in GPS module

Applications

- Customs and border control
- HAZMAT and CBRNe teams
- Emergency services
- Police and security
- Industrial facilities
- First responders

Radiation Detection › **Handheld Monitors**

PM1401K-3P Multipurpose Hand-Held Radiation Monitor/Identifier

Gamma-neutron model suitable for various radiation control tasks.

The **PM1401K-3 series** of radiation monitors compromises a wide range of all-in-one devices for radiation detection, dose rate, contamination measurements, spectrometry, and radionuclide identification.

The **PM1401K-3P model** is the **gamma-neutron model** suitable for various radiation control tasks, including measurement of ambient dose equivalent rate, detection of alpha, beta, gamma, and neutron sources, measurement of alpha and beta radiation flux density, acquisition of gamma spectra, identification of radioisotopes, and measurement of food/soil contamination with ^{137}Cs.

Features

- Storage of up to 10000 events and 1000 spectra
- Audible, visual, and external vibration alarm
- Categorization of identified radionuclides
- Shock and water-resistant IP65 case
- Adjustable radionuclide libraries
- USB communication with PC
- Built-in GPS module

Operation principle

The PM1401K-3P continuously measures ambient dose equivalent rate $\dot{H}^*(10)$ of photon radiation in the wide energy range, detects alpha, beta, gamma, and neutron radiation, measures alpha and beta radiation flux density, operates as a gamma radiation spectrometer and radioisotope identifier, and measures food/soil contamination with ^{137}Cs radionuclide.

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Partner GEORADIS s.r.o.

Georadis s.r.o. is a specialized manufacturer of advanced radiation detection and monitoring instruments, offering a comprehensive suite of solutions for field and laboratory applications. Their product portfolio includes handheld monitors, portable isotope identifiers, environmental monitoring devices, and laboratory equipment, all designed to meet the rigorous demands of professionals in sectors such as environmental monitoring, industrial safety, and public security.

Product offering

RT-30 Gamma-Ray Spectrometer with Nuclide ID Capability – Georadis

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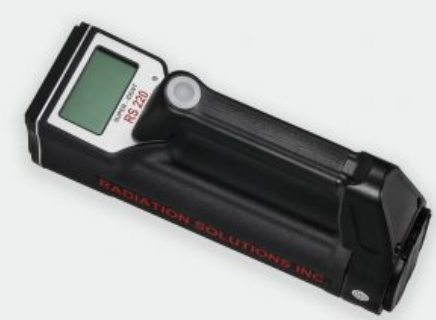
RT-30 Gamma-Ray Spectrometer with Nuclide ID Capability – Georadis

The RT-30 Gamma-Ray Spectrometer with Nuclide ID Capability (Georadis) integrates a radiation survey meter, dose meter and radionuclide identification device in a weather protected, lightweight and easy to use instrument.



RT-30 Gamma-Ray Spectrometer with Nuclide ID Capability features:

- multiple functions; nuclide ID (isotope name), scan and search
- auto-stabilization
- protection: IP66
- single button operation
- sensitivity: Co-60: 270 cps/MBq, Cs-137: 160 cps/MBq, Am-241: 75 cps/MBq
- data interchange; Bluetooth or USB
- readout search mode; 0 – 65535 cps
- energy response: 20 keV to 3000 keV
- energy compensated doserate: 0 – 10 mSv/h (with G/M detector)
- graphic LCD display; 128 x 64 pixels
- 2GB memory

Read more about the RT-30 Gamma-Ray Spectrometer with Nuclide ID Capability on the Georadis website