

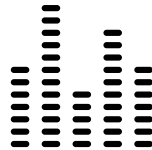


AERIS

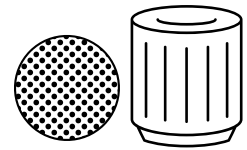
FIELD GAMMA SPECTROMETER FOR AIR FILTER ANALYSIS



Portable system for
in-situ measurement



High-sensitivity gamma
spectrometric detector



Accepts filters/cartridges
up to 60 mm diameter

Nuclide identification and
activity quantification

Fast on-site results, no
laboratory required

Uncompromised sensitivity in
a portable package

Built for all expertise levels

Field-ready rugged
construction

Compact, lightweight, IP65

AERIS is a rugged, portable gamma spectrometric measurement system designed for in-situ analysis of radioactive contamination collected on air particulate sampling media.

Deployable in fixed or mobile configurations, **AERIS** accepts both filters and cartridges directly from any air sampler, enabling immediate on-site radionuclide identification and activity quantification without the need to transport samples to a laboratory.

The system integrates a NaI(Tl) detector coupled with a Silicon Photomultiplier (SiPM) and a multichannel analyzer (MCA), housed within a lead shield to ensure accurate measurements even in high background environments. Pre-loaded efficiency curves for all supported filter geometries, automatic energy calibration, and a guided one-button-start interface enable correct operation by non-specialist personnel without manual input. A dedicated expert mode gives experienced operators full control over measurement parameters, spectral analysis, and remote configuration.

For each measurement, **AERIS** reports identified radioisotopes, activity (Bq), activity concentration (Bq/m³) and dose rate, triggering visual and acoustic alarms when user-settable thresholds are exceeded.

The rugged construction, high IP rating, and long-lasting battery ensure continuous operability under harsh field conditions. Results are archived locally and can be transmitted automatically to central data repositories via wired or protected wireless communication links.

TECHNICAL SPECIFICATIONS

Detection system

- 2" x 2" NaI(Tl) scintillator coupled with SiPM
- Digital MCA
- Energy resolution (FWHM): $\leq 7\%$ at Cs-137
- Energy range: 30 keV – 3 MeV
- Dose rate range: 0.005 – 250 $\mu\text{Sv/h}$ (Cs-137)
- Cylindrical lead shield, 1 cm thickness
- Automatic gain-temperature compensation

Output Quantities

- Activity (Bq)
- Activity concentration (Bq/m³)
- Minimum Detectable Activity (MDA)
- Dose rate ($\mu\text{Sv/h}$)
- Visual/acoustic alarms on user-settable thresholds

Mechanical

- Weight: 12 kg (excl. transport case)
- Dimensions: 40 x 30 x 20 cm (excl. transport case)
- IP 65 protection grade
- Operating temperature: -10°C to +45°C

Software & user interface

- User-configurable isotope libraries
- Automatic energy calibration
- Guided workflow suited for non-specialist users
- Expert mode with full spectrometric control
- Local data storage, remote transmission capability
- Double user interface: touch-screen + trackball

Communications & positioning

- Integrated industrial 4G router
- Cellular connectivity: 3G / 4G LTE / 5G NR
- Dual-band Wi-Fi, LAN, USB and RS232
- Integrated GPS / GNSS receiver

Filter Compatibility

- Multiple filter/cartridge types and sizes supported (up to 60 mm diam.)
- Monte Carlo-calculated efficiency curves for standard geometries

Power

- Rechargeable battery (3 h, extendable to 8 h)
- Fast startup time (< 2 minutes)

MINIMUM DETECTABLE ACTIVITY (MDA)

The following values are related to a 1 mm-thick glass fiber filter, and to a 100 nSv/h natural background.

I-131	Ba-133	Cs-137
5 minutes: 4.92 Bq 10 minutes: 3.46 Bq 40 minutes: 1.71 Bq	5 minutes: 7.94 Bq 10 minutes: 5.58 Bq 40 minutes: 2.76 Bq	5 minutes: 7.70 Bq 10 minutes: 5.40 Bq 40 minutes: 2.67 Bq



Typical filters/cartridges



AERIS transport case

