

MS-4000 AGRS

Summary

- *High sensitivity*
- *Lightweight and rugged carbon housing*
- *CsI scintillator for enhanced stability*
- *Full spectrum recording*
- *Automatic gain stabilization*
- *Online nuclide-specific count rates*

Radiation Sensor

- *CsI crystal, other crystal types on request*
- *Dedicated Spectrum Processing Unit comprising*
 - *2048 channel MCA,*
 - *HV supply*
 - *Spectrum stabilization*
 - *Nuclide-specific data*
- *On-board data storage*
- *Battery-powered*

Logging

- *On-board data logging*
- *Set-up, control and viewing of data via built-in webserver (optional)*
- *Connects to MASS data logging software*

System Data

- *Size: 196x167x840mm*
- *Weight 29.4kg*
- *Housing: aluminum*
- *Connectors: one 8-pin LEMO M-series*
- *Environmental:*
 - *-40⁰C to +85⁰C;*
 - *IP66 protected*
- *Power:*
 - *Input range: 9-18V or 9-36V*
 - *Power consumption max 5W*
- *Data acquisition rate: single shot – 10Hz*
- *Data storage capacity:*
 - *4GB internal*
 - *20 days of continuous measurement (at 1Hz)*
- *Connectivity: user-configurable output streams over IP*

Application

The Medusa Radiometrics MS-4000-CsI-MAS "Airborne" gamma-radiation detection system (AGRS) is our "classic" lightweight radiation sensor that was first introduced in 2006 and used for a large regional uranium survey in Madagascar. The size and weight of "classic" systems (consisting of one or more 16L packs of NaI crystals) often exceeds the available payload of modern small, lightweight platforms or even unmanned drones for radiometric surveys.

To allow for a sizeable reduction of the "payload consumption" imposed by airborne gammaray systems, we developed a novel measurement methodology that combines the use of a (much) smaller detector and the use of full spectrum data in the spectral analysis.

Technology

The system comprises a 4x4x16 inch (4L) CsI-based scintillation detectors connected to a tailor-made spectrum processing unit. This unit comprises a single PCB containing HV supply for the detector, 2048-channel MCA and a data processing/storage board. The board communicates via TCP/IP over a rugged polyurethane coated network cable.

Data acquisition takes place either via the embedded web-based data acquisition system or via our MASS data acquisition software. MASS is a Windows app that runs on a standard PC or laptop.

- *Set-up of the system;*
- *Status view to inspect data and functioning of the system;*
- *Single and continuous measurement modes;*
- *Download view to allow retrieval of recorded data.*

The data is stored in records containing energy-stabilized gamma ray spectra, together with count rate and activities of ⁴⁰K, ²³⁸U, ²³²Th and ¹³⁷Cs. Other radionuclides can be added on request

System Operation

The system is designed for minimum operator interaction. It provides various views on the data streams while being acquired, allowing for online system checks. The system can be equipped with embedded data storage having a maximum capacity of 32GB, yielding space for over 4000 hours of continuous logging of data.

If 4 liters is not enough...

The system is available as a "standard" 4x4x16 inch (4L) pack and an enhanced 4x8x16 (8L) version. However, we do not stick to these standard sizes. Crystal size, shape and material can be tailored to your needs. Modern computer-aided detector design and optimisation techniques helps our engineers to find the right tradeoff between system size and data quality.

[Request more information](#)

