

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*
 - *4096 channel MCA,*
 - *Spectrum stabilization*
 - *Nuclide-specific data*
- *Up to 4GB on-board data storage*
- *Wireless connection via WIFI and Bluetooth*
- *Battery-powered*

Logging

- *On-board data logging*
- *Set-up, control and viewing of data via built-in webserver*

System Data

- *Housing: Carbon fiber; end caps: Anodized aluminum*
- *Connectors: one 8-pin LEMO M-series*
- *Environmental:*
 - *-40 °C to +85 °C;*
 - *IP68 protected*
- *Power: 12V, 5V, (3W nominally, 6W max)*
- *Data acquisition rate: single shot – 1Hz*
- *Data storage capacity: 4GB internal*
- *Connectivity: user-configurable output streams over IP or serial link*

MS350

- Size: 120mm \varnothing x 220mm (L)
- Weight: 2600 gram (NaI), 2900 g (CsI)

Applications

The Medusa Radiometrics MS-350 is the latest addition to our product line of low-power, lightweight and robust gamma-ray sensors developed with unmanned aerial vehicle (UAV) applications in mind. These systems are fully self-contained as they integrates data acquisition, processing and storage into a single embedded system.

The MS-350 can also easily be used as a handheld system, operated from a smartphone or tablet PC.

Technology

The system comprises a 3x3 inch (350 ml) CsI-based scintillation detectors connected to a tailor-made spectrum processing unit. This unit comprises a single PCB containing a 4096-channel MCA, a GPS board and a data processing/storage board. The board communicates via cable and WiFi.

The unit runs a dedicated webserver that provides access to the multiple functions of the device, i.e.

- 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.

This webserver can be accessed via any standard webbrowser platform.

The data is stored in records containing energy-stabilized gamma ray spectra, together with count rate and activities of ^{40}K , ^{238}U , ^{232}Th and ^{137}Cs . Other radionuclides can be added on request. The data is geo-referenced using the built-in GPS system.



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 has an embedded data storage having a maximum capacity of 4GB, yielding space for over 400 hours of continuous logging of data. The system can be user-configured to output gamma-ray spectra continuously, allowing to connect the sensor to multiple data acquisition systems.

