HGD
Hyperspectral Gamma-ray Detector

Description

HGD is a detector to measure Gamma-ray radiation through an hemispherical crystal placed behind a protective, thin, aluminum cover. It's been designed to operate also as a stand-alone unit, battery powered.

A standard USB-C port allows to download data recorded or operate the detector continuously, as well as recharge the internal battery.

The detector is supplied with an intuitive data acquisition software interface. The operational time, without external power, may last up to 8 hours.

The hemispherical sensor consists of a Cadmium-Zinc-Telluride (CZT) semiconductor element with high-speed electronics for single photon counting, capable of measuring both the photon flux and photons energy.

The embedded artificial intelligence algorithms allows to optimize the acquired spectrum.

This information is then available and transmitted over the USB-C port, once plugged, for any further elaboration by the user.

Features and Benefit

- High resolution detection of ambient radiation
- Hemispherical sensor of the latest generation (CZT)
- Sensor protected with an aluminum window
- Record data and download at programmable interval of time
- Certificate of calibration with isotope
- Data transmission with a simple protocol over USB-C port
- Multi-colour LED to visualize detector status
- Battery operated or via USB-C port
- Supplied with an easy software GUI
- Robust aluminum case, light weight, dust proof

MADE IN ITALY

Functional description

When switched on, HGD detector performs a series of checks and goes in a state awaiting the command for functional enabling: Gamma-ray acquisition mode occurs only when this command is active. When the detector is connected with USB-C, the enabling command is made via the GUI.

When battery operated the command is made with the pressing of the front button. Once enabled the detector starts to record data that are saved on a flash memory.
All controls of the detector can be done through the commands of the GUI.
The total spectra can be downloaded at interval of time defined by user.

HEMISPHERICAL CZT SENSOR
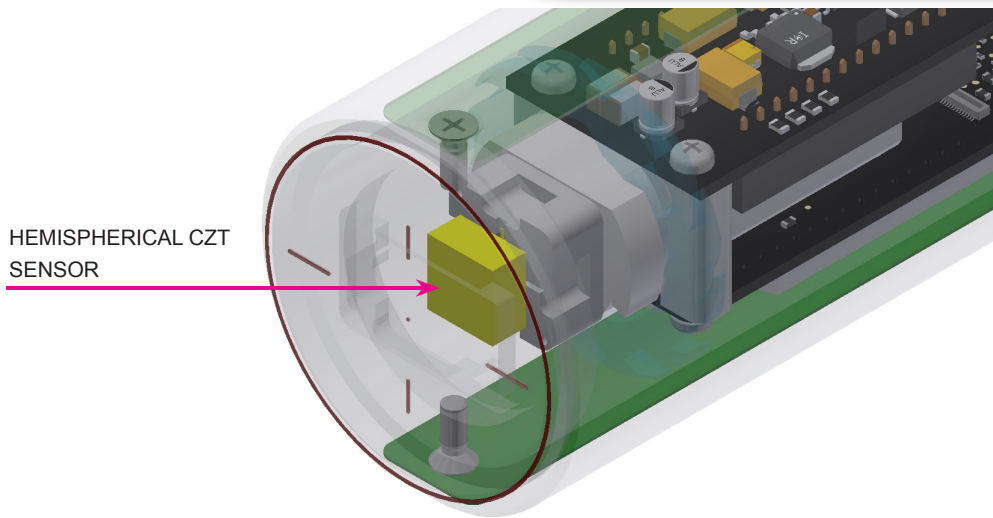
Dimension

Diameter: 49 mm max
Length: 176 mm (without connectors)

176

49

46
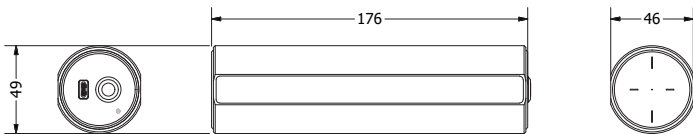
Technical specifications

Sensor type:	CdZnTe-Hemispherical
Dimension CdZnTe:	mm 10 x 10 x 5
Reading area:	mm^2 100
Energy resolution:	<3% FWHM ^{137}Cs (662 keV)
Optimum energy range:	20 keV - 2MeV
Max count rate:	50 kcps
Detector window:	Aluminum 0.5 mm
Overall dimension:	diam 49 mm x 171 mm
Body case:	Aluminum
Protection degree:	IP5X
Cooling:	ambient air
Working temperature:	max 40°C ambient
Battery:	Li-PO 1150 mAh