

RT - 56 Gamma Ray Monitoring System

The RT-56 is combination of high performance and fully autonomous Gamma Ray spectrometer with powerful CPU unit serving for data acquisition, tasks management and communication. That all requires a minimal demand of energy and can stay abandoned for very long time.

The RT-56 is designed for long term monitoring of radiation levels. Applicable in surveillance of environment as well as in industry. Various sizes and types of detectors together with advanced design of spectrometer opens a wide range of HW and SW configurations. This way the RT-56 can be simply tailored to match specific tasks.

The main application of the RT-56 is Gamma Ray Surveillance in static (permanent monitoring point) or dynamic (car borne) mode. Instrument is fully autonomous and using internal advanced procedures it guarantees uninterrupted stability and continuous quality of measured data. Automatic energy calibration is performed repeatedly on backstage process and does not require use of any external radioactive source. All system events are reported in comprehensive log and can serve also as source of additional information about events happening during monitoring period.



Beside basic monitoring mode where are measured and filed complete Gamma Ray spectra plus information about total exposure rate and dose rate, additional information can be added. Typically, there is a requirement for continual inspection of preselected spectral parts, nuclide identification or logging of uneven rate of Ray sparks. All measured data can be used for triggering of alarms. Measured recorded data are stamped with time and date. Time keeping is fully synchronised with built in GPS in the unit. GPS can also deliver a HW signal for triggering measuring process. This way can be synchronized more instruments within a monitoring net. Results are recorded on SD card of default capacity 64 GB. Any further capacity extension is possible. The standard size of the memory is sufficient for 6 months of operation. There is implemented a Li-Ion backup battery inside the unit. It holds for 8 hours of operation. For long term monitoring purposes on places without power net there is delivered an optional battery in a water-resistant suitcase.

The RT-56 read-out is done through various interfaces and protocols. The easiest is a direct communication with a suitable PC Laptop using ethernet connection to interface console software. The RT-56 features PoE LAN. Beside data interfacing it also serves as a power supply. Using Ethernet connection with optional communication devices extends the operation range to remote places without a build infrastructure and profits from all of the capabilities of internet.

The external console software ensures the on-line communication with the spectrometer, assists with data logging and helps set-up the operational parameters and measuring tasks of so-called Base Station mode.



The RT-56 is available with various types and sizes of scintillation detectors. Maximum size limit of crystal 3" diameter and 3" height. The height of the crystal can be extended optionally up to 5". Most common are application with NaI/Tl and BGO detector, currently we are implementing a new type of GAGG detector, what combines benefits of NaI/Tl and BGO technology, excellent resolution with high density.

Technical data

Probe:

Detector NaI/Tl or BGO, 3" diam. x 3", optional GAGG 2" diam. x 2" or smaller
Converter 1024 channel, High Speed, Energy Linear, Fully Digital
ADC Scan rate 40 MHz
Data processing FPGA
Energy Range 30 - 3 000 keV (optionally up 10 MeV)
Com Interface PoE, optionally USB, Bluetooth or Wi-Fi
Power 12 V / 500 mA, supplied from PoE or charge connector
Dimensions Diameter 120 mm, Length 600 mm
Max. Temperature 60 °C
Environmental IP 65 or fully water and dust resistant on demand

Standard Configuration:

Detector unit
Software Package RT-56 Console

Optional Accessories:

- Various type of communication interfaces and modems
- Heavy Duty Tripod
- Car roof stand