## GAMMA SPECTROMETER FOR DYNAMIC MONITORING

GSU DYMO

MAIN FEATURES

- Gamma spectrometer for dynamic monitoring based on big dimensions NaI(Tl) detectors
- Fast and accurate data acquisition
- Proprietary software for ROI definition and data management
- Easily adaptable to several measurement applications
- Integrated utilities for calibration and temperature correction
- Real-time display of data and GPS coordinates (GPS optional)
- Fully operative even while battery-powered (6 h lifespan during data acquisition)
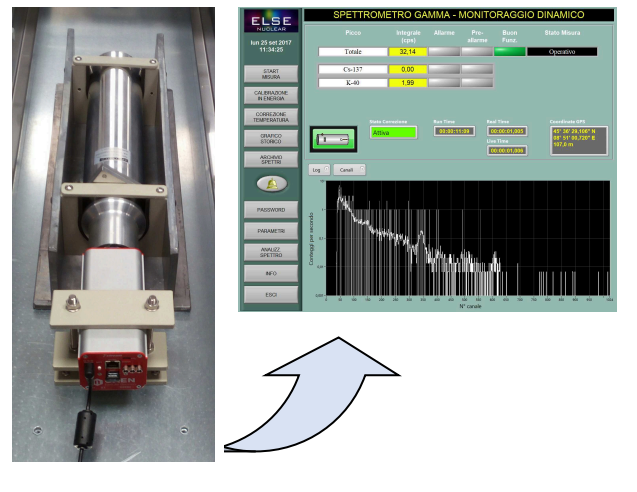
DESCRIPTION

The gamma spectrometer **GSU DYMO** is a versatile measurement equipment based on big dimensions NaI(Tl) detectors, and composed of the following main parts:

- NaI(Tl) detector
- MCA electronics
- Processing software

GSU DYMO is designed to perform gamma spectra acquisition in a dynamic configuration, which means that either the detector or the object to be monitored is moving (e.g. area monitoring performed with the detector installed on a vehicle, or monitoring of materials carried by a conveyor belt). This requires a considerably fast and accurate data acquisition, and a high counting efficiency.

The proprietary processing software allows to perform this kind of analysis, through the definition of ROIs in the gamma emission spectra and the possibility to set the frequency of the instant spectra acquisition (1s typical). A moving average algorithm is applied to the acquired spectra, in order to better identify sudden spectrum variations above the background. This way, the software can determine the net integral counts for each ROI and even quantify the activity of each radio-isotope, for example ^{241}Am, ^{137}Cs, and ^{60}Co.

GSU DYMO is the perfect solution for applications that require a simple, reliable and versatile instrument to perform gamma spectrometric analysis. Some of these applications can be for example:

- aerial monitoring of a territory portion performed with helicopters or drones
- area monitoring performed with vehicles (either ground or water)
- monitoring of materials carried by conveyor belts

Thanks to its hardware simplicity, once the monitoring activity is concluded **GSU DYMO** can be easily installed on a different vehicle or re-configured to perform a different monitoring activity.

GSU DYMO uses cylindrical NaI(Tl) scintillators (typically 3"x12" or bigger) to reach higher efficiencies, coupled with a multi-channel analysis electronics.

The processed data are sent to the control PC via a direct connection (USB or ETH), and saved in graph and ASCII format; this way, the data are available for sharing through the most common data processing applications.

The management software has an integrated utility for energy calibration and temperature correction, which allows to "follow" the natural K-40 peak and to correct the analysis compensating the temperature effects.

When the acquisition is started, the software displays in real-time the measurement data such as: time, GPS coordinates (if available), correction status, detector status, battery and power status.
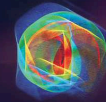
TECHNICAL CHARACTERISTICS

Detector characteristics
- Detector: NaI(Tl) scintillator
- Dimensions: 3"x12" or bigger
- Housing: aluminium, 0.5 mm thickness, to avoid crystal deterioration due to hygroscopic effects
- Resolution: <9% at 662 keV
- Bias voltage /typical): 700 – 1000 V

MCA characteristics
- Ethernet connection
- Available bias voltage: from 0 to 1500 V
- Dimensions: 71.2x66.4x163.8 mm (connectors included)
- Weight: 700 g
- Power supply requirements: <400 mA from DC input (5V or 12V)
- AC/DC adapter included
- Integrated battery (6 hours lifespan during data acquisition)

Flight case accessory
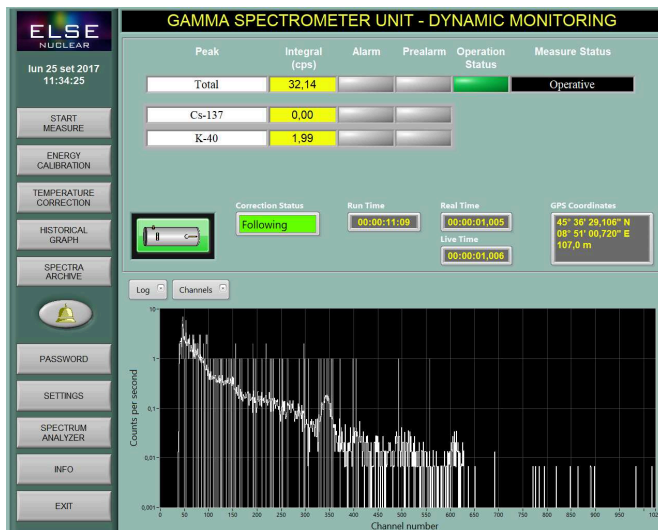
Management software operator panel

Specific application: monitoring of materials carried on conveyor belt

OPTIONS
- GPS (integrated in MCA electronics)

ACCESSORIES AVAILABLE UPON REQUEST
1. Radioactive test source
2. IP65 housing
3. Flight case for components transportation
4. Warranty extension from 12 months to 24 months