Spartan Pack

RADIONUCLIDE IDENTIFIER BACKPACK & SOURCE LOCATION

- High performance tools for radionuclide search, identification & location
- First automated gamma radiation localizer in backpack detectors
- Sensitive method for finding multiple sources

Spartan Pack backpack provides a high performance tools for radionuclide search, identification, and location.

Every year a significant amount of radioactive sources disappear, are found or are stolen. Smuggling of radiological or nuclear material is becoming more and more frequent. Hospitals, medical science, lighthouses, power plants and industry all use different types of radiological sources. Every day the nuclear power plants create nuclear waste, which has to be handled and stored. Opportunities for the material to become misplaced, stolen or a container to leak because of an accident are numerous. Even a small amount of radioactive material can be used in a dirty bomb, which effects will be extremely harmful to the infrastructure or a misplaced source can cause serious danger as the symptoms appear few days after exposure.

KEY FEATURES

- High sensitivity
- High precision automated localization method
- Very low false alarm rate
- Automatic energy stabilization – valid data available all-time
- Exceeds ANSI and IEC standard (15 degrees precision)
- Estimation of the source location calculated reliably and quickly – approx. 12 sec
- Remote control through a smartphone interface
- Full reach back capability
- Easy to use expert tool

APPLICATIONS

- Locating orphan sources
- Radiological safety of critical infrastructures (e.g. airports, governmental buildings, etc.)
- Survey of potentially hazardous areas by first response teams
- Integration with both light or armored vehicle solutions
- Monitoring of high security events

Comprehensive Full Spectrum Database

Spartan Pack has an integrated GPS system, which enables logging measurements in conjunction to the time and place. The device offers a comprehensive radionuclide database for reference. All measured data can be compared to the known spectrums for very specific analysis.

Reliable Data – Extremely Low False Alarm Rate

The Spartan Pack implements unique automatic energy stabilization routines, meaning that the detector is able to conduct continuous spectroscopic measurements and analysis. The neutron detector has been designed to reject cross-sensitivity to gamma radiation meaning that it is not affected by high dose rates. This makes the Spartan Pack significantly more sensitive than similar R/N detectors and helps reduce the false alarms to absolute minimum.

Full Reachback Capability

The Spartan Pack supports all commonly used wireless data transfer methods, and are able to be in constant contact with the control centers where the experts can process the measurements for more in-depth analysis. This helps verify the threat rapidly and provide immediate instructions for action.

Spartan Pack SOLO, Spectrometric Radiation Source Locator for Spartan Pack

Spartan Pack SOLO is a valuable add-on for Spartan Pack that enables tracking down multiple sources of gamma radiation.

Radiation source localization is often the “missing link” in field operations. Whereas detection and identification of the radiation source can be efficiently done with sensitive spectrometers, its localization usually remains as a highly demanding task to perform. Under these circumstances, Spartan Pack SOLO operates as an automatic and reliable system, providing accurate directional information, within a challenging short time frame. This allows the operators in mission to easily track down one or even multiple sources of radiation. The performance of this process does not commit the detection and identification processes running simultaneously.
With information collected from different points on the field (this procedure can be done with one operator measuring from different points or multiple operators combining information in real-time through the integration with Enviscreen Operix) a triangulation method can be used to calculate the estimated the location of the source(s).

Technical Data

Size Approx. 440 x 340 x 190 mm (17”L x 13”W x 7”D)
Weight Approx. 4.7kg (166 oz.) with LaBr3 and Neutron detector approx. 5.9kg (208oz.) with Spartan Pack SOLO
Power Uses FZ-M1 Toughpad internal battery 100-240V (50-60Hz)
Battery Life >6 hours without External battery unit Approx. 8 hours with external battery
Communications WLAN 3.5G Integrated GPS Optional with hot swappable battery: RJ-45 Ethernet LAN
Relative Humidity 95% at 35C, non-condensing
Temperature (Operating) -20 °C to 50°C (-4°F to 122°F)
Spectrum Configurable as 2048 or 1024, Maximum Count Rate > 250 kcps
Library & Categorization Designed to fulfill and exceed standard N42.34 ANSI Isotope list Medical and Industrial lists Special Nuclear Material lists Customizable user defined lists and ROIs

Performance Specification

Gamma Detector	LaBr3 scintillator 1.5”x1.5” or NaI (Tl) scintillator 2”x2” (Optionally other detector sizes)
Energy Range	30Kev to 3MeV
Energy Resolution	< 3% FWHM @ 662keV (LaBr3) < 7.5% FWHM @ 662keV (NaI)
Neutron Detection	H3 free 6Li:ZnS (Ag) Detector
Dose Rate Range	0.01 to 100µSv/h
Dose Rate Accuracy	±5%
Direction Capabilities	Exceeds ANSI and IEC standard (±15 degrees precision)

Control Units

Type FZ-M1 Toughpad and Smartphone

Software Spartan Pack control and monitoring software

Software features

- Nuclide identification
- Spectrum analysis
- Dose rate calculation
- Comprehensive radionuclide database
- Audible search tool
- Spectrogram (Waterfall plot)
- Nuclide significance
- Alarms with sound
- Long spectral measurements