NucScout

Spectroscopic NaI Gamma monitor with nuclide analysis, GPS and wireless interface

The NucScout monitors the local dose rate as well as the activity of six user selectable nuclides time distributed over long periods. The sampling interval can be adjusted by the user. A complete energy spectrum is saved for each interval on the removable SD memory card.

The unit is equipped with an integrated GPS receiver which allows the local assignment of the acquired data. The NucScout can be calibrated by the user, so by the way it is possible to determine and adapt correction factors for any sampling geometry which can be used later on. As an option, the instrument may be ordered with a ZigBee wireless network interface to transfer recent data over several hundred meters to a “base station” computer.

Typical applications are searching for hidden radioactive sources, screening of large contaminated areas based on GIS solutions, process monitoring, tests of building materials or food and nuclear medicine.

The robust and handsome 2” x 2” NaI detector is fixed to the ergonomic handle while the electronic box can be removed from the handle by a bayonet catch. This allows the user to place the detector in any position to the radioactive source. The large detector volume results in a low detection limit so that even week sources can be found. The wide touch screen makes the operation of the unit comfortable.

The NucScout offers two different algorithms for the activity calculation of the several nuclides. The user may decide between the traditional trapezoid method and the newly developed IDEA algorithm which offers a maximum of spectroscopic resolution (no background regions left and right of the photo peak are required) at comparable detection limits.

Included in the delivery is a comprehensive software package for data download, result presentation, data export and instrument configuration. Remote control of the unit is possible via the integrated USB or optional wireless network.

The optionally available IDEA ILC software offers the possibility of map based visualization of area distribution of contamination or localization of point sources. The program uses for calculation all available data records with GPS coordinates which have been acquired in the surrounding of the source or taken from the area of interest. Local dose rate as well as activities of each nuclide can be displayed.

Technical Data

Gamma probe	
Detector	NaI(Tl) with integrated photo multiplier and high voltage supply Cylindrical scintillation crystal 2“ x 2“ Energy range 30 keV – 2.4 MeV (optional from 10 keV or to 3 MeV) Resolution < 7% (662 keV)
Results	Local dose rate, net activity of 6 user selectable nuclides Storage of time distribution including 256 channel spectra an GPS coordinates
Probe dimensions	Diameter 59 mm, Length 261 mm
Common	
Sampling	Storage of up to 16 different measurement programs (defined or infinite repetition) with intervals from 1 second to weeks
Memory	SD card, 2 GByte (larger cards are also possible)
Control	Touch screen 6 x 9 cm with back light Interface: USB and RS232 (optional Zigbee instead of RS232)
Power supply	NiMH battery with internal charger or wall adapter Operation: 8 hours
Weight	2.5 Kg
Software	dVISION: device control and data transfer, visualization data export, data management dNUCLIB: simple selection of the six nuclides which shall be analysed dCONFIG: system configuration, creation of sampling cycles IDEA-ILC: GIS based visualization (Google Earth, Bing) of activity distribution and point sources
ZigBee (optional)	Frequency 2.4 GHz, power rate 100 mW Protocol IEEE 802.15.4