CAEN SyS

Systems and Spectroscopy Solutions

RADIATION MONITORING SYSTEM OF WASTE MATERIALS FROM DECOMMISSIONING OF POWER NUCLEAR PLANTS

ARCHIMEDES II 9102 WiFi

MAIN FEATURES

- Detectors: 2 large plastic scintillators
- Fast measurement of the gamma activity of bags containing up to 150 Kg of waste materials
- Mobile system mounted on wheels
- Removable detectors for use in remote mode
- Measurements up to 200 Bq of ^{60}Co in 10 seconds
- Luminous and acoustic signal when the alarm threshold is exceeded
- Beacon column indicating the functioning status of the system
- Host PC for data processing and storage
  Analysis Software and data base of measurements
- Optionals: barcode reader, scale, label printers
- MDA (^{60}Co): down to 200 Bq (10 min)

DESCRIPTION

The **ARCHIMEDES II 9102 WiFi** is designed to perform fast measurements of the gamma activity of bags, containing waste materials coming from the Nuclear Power Plants Decommissioning or from plants where high neutron flows were used.

It is a mobile system, mounted on wheels, hence it's easy to handle and versatile in all the different types of applications and of locations where its deployment is requested. The system is composed of a base structure with an installed control console, and two vertical detection units facing the measurement area where the bags are loaded. The system elements are protected by 3 mm of stainless steel.

ARCHIMEDES II 9102 WiFi

The detectors position on the base can be adjusted to best fit the size of the material and maximize the counting efficiency. Thanks to these two particular features, the system can comply to a wide range of waste storage requirements. The detectors are fully removable from the support base, allowing remote-mode measurements when needed; the acquired data are sent to the host PC through the WLAN connection, and a central unit performs data acquisition and processing.

When the detectors are used in remote mode, the power supply is provided by rechargeable batteries installed in each module. When the detectors are connected to the support base (normal mode) the batteries are recharged and the power supply is provided by the mains.

The system is equipped also with an alarm beacon, and the analysis and management software.

The **ARCHIMEDES II 9102 WiFi** allows measurements down to 200 Bq of ^{60}Co in 10 minutes (within a 95% confidence level, 10x10 cm source at 5 cm from the detector).

The system **ARCHIMEDES II 9102 WiFi** calculates the gamma activity of the material being monitored and compares it with the operative clearance limits; then it issues an acoustic and visual signal to confirm the good functioning and the measurement result.

Before starting the actual measurement phase, it is possible to run a test to verify the proper functioning of the system itself. The System Software allows the setting of the operative parameters, as well as the analysis and the archiving of the data coming from the electronics associated with the detectors.

Optionally, the following accessories are available on request: a barcode reader, a scale to measure the weight of the materials to be measured, and a set of printers for labels (typically written in green or red depending on the measurement results).

TECHNICAL SPECIFICATIONS

Detection unit
- n.2 large plastic scintillator detectors
- 2" low noise photomultipliers
- Removable detectors powered by batteries (when used in remote mode)
- Detector dimensions: 500 x 500 x 50 mm
- Lead shield thickness: 1 cm on the external sides of each detector's module
- Steel window thickness: 1 mm on the side facing the measurement area
- Distance between the detectors mounted on the structure's base: selectable from 2 up to 50 cm
- Detectors: anti-vibration structure

Acquisition unit
- Low noise Power Supply and Signal Processing electronics
- Threshold Discriminators for each Detection Unit
- WLan Ethernet Interface to PC

Alarm beacon
- White light: ready
- Green light: uncontaminated
- Yellow light: measurement in progress
- Red light and siren: contaminated (alarm)

Host-PC
- Industrial panel PC, LCD touch-screen display
- Display: LCD TFT 8.4"
- RAM: 256 MB

Processing software
- Analysis and Data Archiving Software for the management of the measurement system
- Radioactive measured level visualization, Bq, Bq/cm^2 or Bq/g unit

Weight and dimensions:
- Max dimensions (excluding alarm column): 160x95x110 cm^3 (WxLxH); Total weight: 350 kg

OPTIONS AVAILABLE UPON REQUEST

In addition to standard supply, the following options are available upon request:
- Scale to measure the weight of the materials to be measured
  - Max weight: 150 kg; resolution: 20 g
- Set of printers for labels (typically written in green or red depending on the measurement results)
- Barcode reader
  - Reading distance up to 30 cm; reading resolution 5 mm; code distinction up to 10 cm

ARCHIMEDES II 9102 WiFi software main panel

POWERED BY

www.caensys.com