Radiation Detection & Protection Equipment Catalogue
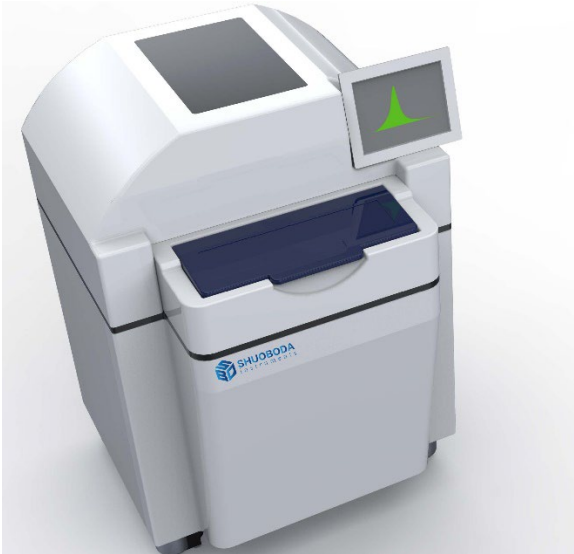
Shuoboda Instruments (Hunan) Co., ltd
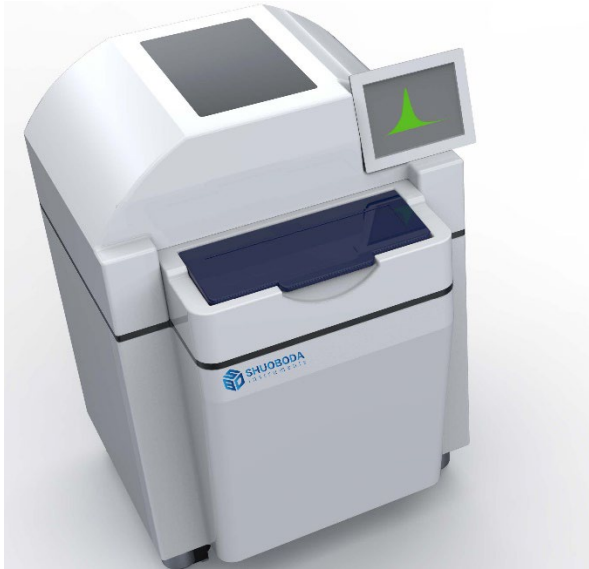
CONTENTS

Radiation Detection

Radiation Detection

Laboratory Radioactive Analysis Instruments

1. LSC3000 Ultra Low Background Liquid Scintillation Spectrometer

Product introduction

• LSC3000 ultra-low background liquid scintillation spectrometer is a liquid scintillation analyzer independently developed for the determination of ultra-low-level α and β-emitter radioactivity. Its technical performance and index parameters rank among the international advanced ultra-low levels The ranks of liquid scintillation spectrometers have filled the domestic blank.

• LSC3000 ultra-low background liquid scintillation spectrometer is an essential equipment for low-level radioactivity measurement laboratories, mainly used for extremely low levels of 3H, 14C in environmental samples (such as water, air, soil, animals, plants, etc.) It can also be used for the measurement of other α nuclides and β nuclides, and is widely used in nuclear power plants, nuclear energy facilities, environmental protection, education, scientific research, hydrogeology, food science, archaeological dating, and ocean expeditions.

Features

• Using TDCR quenching correction technology

• Using dual multi-channel analysis technology, providing a unique measurement and analysis program for α and β in water

• Direct measurement of high energy beta nuclide activity using Cherenkov radiation technique

• Absolute measurement technology combined with efficiency tracking technology for dual label separation

• Coexistence of relative and absolute measurements, eliminating the need for standard source calibration

• Ergonomic touch screen display, dual display operation

• Provides optional functions for logarithmic and linear spectra

• Program control to complete unattended measurement, multiple tasks can be set each time

• 70 kinds of nuclide databases, rich preset experimental application schemes, which can be expanded according to customer requirements

Technical parameters

• Analysis mode: counting mode and spectrum mode

• Measurement modes: continuous, repeat, timed, fixed precision

• Sample quantity: 30 • Sample feeding method: automatic conveyor belt

• Sample container: 20ml standard bottle

• Figure of Merit: (EV)2/B ＞ 50000 (measured in 20ml PFA bottle for 3H water sample)

• Multi-channel analyzer: 2 x 2048 or 4096

• Temperature control device: built-in system

• Energy range: α: 3 ~ 10MeV; β: 1 ~ 5000keV

• Background: background is less than 1cpm (20ml contains 40% water, 3H efficiency is greater than 28%)

Background less than 0.8cpm (5ml14C sample, 14C efficiency greater than 70%)

• Detection efficiency: 3H: ≥ 65%, 14C: ≥ 95%

• Lower detection limit: 1.0Bq/L (measured with 12ml scintillation fluid + 8ml tritium water sample for 1000min)

• 24h stability: counts change less than 0.2%/24h

• Energy resolution: 0.01keV/ch(3H)

• Extended capabilities: α, β separation technology

• Display mode: 12" color touch screen and 19" wide screen, dual screen simultaneous display

• Machine size: 1330H×930W×912D(mm) • Weight: ≤ 900kg

• Working humidity: 30% ~ 80% (25°C, no frost) • Working temperature: 5°C ~ 35°C

Radiation Detection

2. LSC3000B Low Level Liquid Scintillation Spectrometer (vehicle-mounted)

Product Description

LSC3000B Low Level Liquid Scintillation Spectrometer (vehicle-mounted) is a vehicle mounted low background radioactivity measurement equipment developed by SHUOBODA based on the technology of LSC3000 Ultra-Low Level Liquid Scintillation Spectrometer, which is suitable for use in vehicles and ships to meet the needs of rea-time measurement in the field.

Functional features

- Tri-omni spectrometer for rapid measurement of common nuclides, with optional BGO probe for y-ray detection
- Small in size and easy to move for vehicle mounted measurements
- Alpha and beta nuclear emergency wipe tests available, providing fast and accurate results for routine wipes
- Using 3+3 coincidence and anticoincidence detection techniques and TDCR quench correction technique
- Reserved storage space for a small number of sample bottles
- Relative and absolute measurements coexist and can be scaled without a standard source
- Logarithmic and linear spectrograms are available
- Direct measurement of energetic beta nuclide activity using the Cherenkov technique
- Database of 70 nuclides, pre-programmed for a wide range of experimental applications, expandable on request
- Programmable for unattended measurements, multiple tasks can be set at a time

Application areas

- Mobile laboratory
- Expedition, homeland security

- Radiation safety, environmental testing
- Nuclear emergency response

Technical specifications

LSC3000B Low Level Liquid Scintillation Spectrometer	
Measurement mode	Continuous, repetitive, timed, constant accuracy
Number of samples	1
Sample feeding method	Manual sample feeding
Sample containers	20ml standard bottle
Multi-channel analyser	2 x 2048 channels
Temperature control devices	System built-in
Energy range	a: 3 to 10 MeV; B: 0 to 5 MeV
Background	Background less than 2.0 cpm (20 ml containing 40% water, ^{3}H efficiency > 28%). ^{3}H (0~18.6keV) < 20 cpm;14C(0~156keV) <25 cpm
Detection efficiency	3H: ≥ 60%, 14C: ≥95%.
Lower detection limit	1.5Bq/L(12 ml scintillation solution + 8 ml tritium water sample measured for 1000min)
24h instability	Count change less than 0.2%/24h
Energy resolution	0.01keV/ch(^{3}H)
Power supply method	AC 220V+10%,50HZ+10%
Power	<200W
Communication methods	USB, RJ45
Display method	4.3" touchscreen and 14" laptop with simultaneous dual display
Machine size	907Hx545Wx798D(mm)
Weight	Approx.400kg
Operating temperature	5°C to 35°
Operation humidity	30% to 80%(25C, no frosting)

Radiation Detection

Radiation Detection & Protection Equipment

SHUOBODA
instruments
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Radiation Detection

3. LSC2000 Low Level Liquid Scintillation Spectrometer

Product Description

The LSC2000 Low Level Liquid Scintillation Spectrometer is a new general-purpose low background radioactivity measurement device developed by SHUOBODA after the successful launch of the LSC2000 Ultra-Low Level Liquid Scintillation Spectrometer. It is mainly used for the measurement of low levels of 3H, 14C and the monitoring of radioactive effluents from nuclear power plants.

Functional features

- Using 3+3 coincidence and anti-coincidence detection techniques and TDCR quench correction technique
- Unique analysis procedure for alpha and beta measurements in water using dual multi-channel analysis technology
- Direct measurement of energetic beta nuclide activity using the Cherenkov technique
- Absolute measurement technique with efficient tracer technology for double marker separation
- Relative and absolute measurements coexist and can be scaled without a standard source
- Logarithmic and linear spectrograms are available
- Fully automatic sample exchange, multi-tasking continuous measurement, up to 260 standard 20ml sample bottles
- Powerful data processing functions for automatic or manual calculation of peak area, count rate and detection efficiency
- Database of 70 nuclides, pre-programmed for a wide range of experimental applications, expandable on request
- Programmable for unattended measurements, multiple tasks can be set at a time

Radiation Detection

Technical specifications

LSC2000 Low Level Liquid Scintillation Spectrometer	
Analysis mode	Energy spectrum model
Number of samples	260
Sample feeding method	Automatic conveyor belts
Sample containers	20ml standard bottle
Multi-channel analyzer	2x 2048 channels
Temperature control devices	System built-in
Energy range	a: 3 to 10 MeV; B: 0 to 5 MeV
Background	Background less than 2.0 cpm (20 ml containing 40% water, ^{3}H efficiency > 25%). ^{3}H (018.6 kev) < 20cpm; ^{14}C (0~156 keV)< 25cpm
Detection efficiency	^{3}H: ≥65%;^{14}C: ≥95%
Lower detection limit	1.5Bq/L (12 ml scintillation solution + 8 ml tritium water sample measured for 1000min)
24h instability	Count change less than 0.2%/24h
Energy resolution	0.01keV/ch (^{3}H)
Power supply method	AC 220V+10%,50Hz+10%
Power	Mainframe 200W, temperature control system 500W
Communication methods	USB, RJ45
Machine size	1245Hx900Wx1145D(mm)
Weight	Approx.600kg
Operating temperature	5°Cto 35C
Operating humidity	30% to 80% (25°C, no frosting)

4. LSC1000 Portable Multifunctional Liquid Scintillation Spectrometer

Product Description

LSC1000 Multifunctional Liquid Scintillation Spectrometer is a portable, multifunctional liquid scintillation spectrometer for measuring the radioactivity of alpha and beta emitters, based on the technology of LSC3000 Ultra-Low Level Liquid Scintillation Spectrometer, filling a domestic gap. The device is small in size and light in weight, and can be used for vehicle or field detection, it's an ideal tool for rapid liquid scintillation measurement and analysis.

Functional features

- Tri-omni spectrometer for rapid measurement of common nuclides, with optional BGO probe for y-ray detection
- Small and easy to move, for outdoor and vehicle measurements
- Alpha and beta nuclear emergency wipe tests available, providing fast and accurate results for routine wipes
- Using 3+3 coincidence and anticoincidence detection techniques and TDCR quench correction technique
- Reserved storage space for a small number of sample bottles
- Relative and absolute measurements coexist and can be scaled without a standard source
- Direct measurement of energetic beta nuclide activity using the Cherenkov technique
- Programmable for unattended measurements, multiple tasks can be set at a time
- Database of 70 nuclides, pre-programmed for a wide range of experimental applications, expandable on request

Application areas

- Mobile laboratory

SHUOBODA
instruments

- Expedition, homel and security
- Radiation safety, environmental testing
- Nuclear emergency response

Technical specifications

LSC1000 Portable Multifunctional Liquid Scintillation Spectrometer	
Analysis mode	Energy spectrum model
Measurement mode	Continuous, repetitive, timed, constant accuracy
Number of samples	1
Sample feeding method	Manual sample feeding
Sample containers	20ml standard bottle
Multi-channel analyzer	2048 channels
Energy range	a: 3 to 10 MeV; B: 0 to 5 MeV
Background	B:<200 cpm(^{3}H) ;< 150 cpm(^{14}C)
Detection efficiency	^{3}H: ≥55%;^{14}C: ≥ 90%
Energy resolution	0.01keV/ch(3H)
Power supply method	DC 12V, rechargeable lithium battery
Power	<40W
Communication methods	AC 220V+10%,50Hz+10%
Display method	4.3" touchscreen and 14" laptop with simultaneous dual display
Machine size	311H x 457W x 403D(mm)
Weight	Approx.28kg
Operating temperature	5°C to 35°C
Operating humidity	30%to 80% (25°C, no frosting)

Radiation Detection

5. HPGe160 Series High Purity Germanium Gamma Energy Spectrometer

Product Description

HPGe160 Series High Purity Germanium Gamma Spectrometer consists of a high purity germanium detector, a digital spectrometer and multifunctional spectral analysis software. It is a high precision laboratory gamma radiation measurement device for the measurement of low level radioactivity in environmental samples (e.g. water, air, soil, etc.)

Functional features

- International level of energy resolution, 16k digital multi-channel signal processing system
- Integrated low background lead chamber design with composite shielding material inside
- Large measuring space in the lead chamber: effective height (end window to lower surface of lead cover) not less than 210mm
- Adjustable multi-channel lower threshold, with direct adjustment of the pulse lower threshold of the input multi-channel
- Data processing system with integrated data acquisition and analysis
- Direct measurement or task mode available, measurement by appointment, automatic multiple measurements
- ENSDF library of nearly 400 nuclides
- Optional liquid nitrogen recondensation refrigeration (liquid nitrogen with electrical cooling), 8kanaloque multi-channel signal processing system

Application areas

Nuclear power safety

- Measurements of radioactivity in nuclear power plants and the surrounding environment

Radiation Detection

- Nuclear emergency radioactive contamination monitoring
- Monitoring of radioactive material during decommissioning of nuclear reactors

Water quality monitoring
- Radioactive environmental pollution monitoring
- Hydrological water quality monitoring
- Environmental samples with complex spectra

Test analysis
- Radioactivity measurement of building materials
- Radioactivity measurement of food

Higher education institutions and hospitals
- Reactor, accelerator laboratory
- Nuclear test laboratory
- Radiation medicine

Technical Specification

HPGe160 Series High Purity Germanium Gamma Energy Spectrometer	
Detector type	Coaxial HPGe detector
(Relative) detection efficiency	10%~160%optiona
Peak shape parameters	FW0.1M/FWHM 2.0
Maximum measurable pulse rate	2100kHz
Energy range	40keV~10MeV 3KeV~10MeV optional
Integral background (50keV- 2MeV)	<2.0cps
Peak to Compton ratio	2 62:1(40%);> 68:1(60%);2 73:1(70%);
Energy resolution	s2.0keV(@6Co,1332keV)
Power supply method	AC 220V+10%,50Hz+10%
Power	50W
Communication methods	USB RJ45
Machine size	1410Hx700Wx700D(mm)
Weight	Approx.1300kg
Operating temperature	20°C+2°C
Operating humidity	5% to 80% (no condensing)

6. HPGe162 Series Anti-Compton Ant-Cosmic Ray Ultra-Low Level High Purity Germanium Gamma Spectrometer

Product Description

The HPGe162 Series Anti-Compton Anti-Cosmic Ray Ultra-Low Level High Purity Germanium Gamma Spectrometers, using a new self-developed anti-coincidence detector, it can achieve very low background levels and high-performance anti-Compton scattering levels, suitable for very low levels and strong radioactive environment of low energy end radionuclide activity measurement, while the best measurement mode can be selected for different measurement objects.

Functional features

- The use of dense, non-hygroscopic BGO crystals in the anticoincidence detector facilitates the optimization of the peak to Compton ratio and the integral background performance of the instrument
- The use of proven coincidence/anticoincidence logic gates and the rational mechanical design of the instrument allow not only for a more stable performance but also for multiple measurements lant-Compton measurements. ant-cosmic ray measurements or anti-Compton anti-cosmic ray measurements) within one device.

- High resolution dual channel multi-channel analyzer for more visualization of pre and post non-conformation spectra
- Integrated low background lead chamber design with composite shielding material inside
- Data processing system with integrated data acquisition and analysis
- Provides an ENSDF database of nearly 400 nuclides
- Customizable in a variety of measurement modes: high efficiency measurement, Y-y, Y-B coincidence measurement
- Optional liquid nitrogen recondensation refrigeration unit (liquid nitrogen with electrical cooling), liquid nitrogen refrigeration

Application areas

Nuclear power safety

- Radioactivity measurement in nuclear power plants
- Nuclear emergency radioactive contamination monitoring
- Radioactive material monitoring

Test analysis

- Radioactivity measurement of building materials
- Radioactivity measurement of food

Water quality monitoring

- Radioactive environmental pollution monitoring
- Hydrological water quality monitoring
- Environmental samples with complex spectra

Higher education institutions and hospitals

- Reactor, accelerator laboratory
- Nuclear test laboratory
- Radiation medicine

Technical Specification

HPGe162 Series Anti-Compton Ant-Cosmic Ray Ultra-Low Level High Purity Germanium Gamma Spectrometer	
Detector type: main detector	Wide energy coaxial HPGe detector
Detector type: anticoincidence	Large volume BGO crystals, Nal crystals
Detector	optional
Peak to Compton ratio	Peak to Compton ratio
Compton suppression factor	>3.5
Energy range	3keV~10MeV
Integral background(50keV-2MeV)	≤0.4cps
Relative detection efficiency	≥40%

Energy resolution	≤2.0keV(@6Co,1332keV)
Power supply method	AC220V+10%,50Hz+10%
Communication methods	RJ45
Machine size	1675Hx1460Wx760D(mm)
Weight	Approx.1800kg
Operating temperature	20°C+2°C
Operating humidity	5% to 80%(no condensing

Radiation Detection

7. LN-C Condensing Liquid Nitrogen Chiller

Product Description

LN-C Condensing Liquid Nitrogen Chiller is a revolutionary breakthrough in the field of cryogenic cooling detectors, a hybrid cooling machine using conventional liquid nitrogen combined with electrical refrigeration. It uses a Stirling thermoacoustic electric refrigerator as the main working component to bring the cold end temperature down to liquid nitrogen temperature, thus condensing the gaseous nitrogen in the Dewar to liquid nitrogen and realising the recycling of liquid nitrogen.

Functional features

- A chiller with a working life of no less than 120,000 hours
- Continuous cooling of the detector for up to 12 months with power supply without no need of replenishment for liquid nitrogen
- 30 liter liquid nitrogen tank, guarantees the detector's cryogenic environment with full liquid nitrogen in the event of a power failure, ensures 10 days of continuous normal operation of the system.
- Stirling electric pulse tube cooling.
- Motor recycles evaporated nitrogen for compression back into liquid nitrogen.
- Software to monitor the working status of the chillers and to monitor the working status of the system in real time
- The interface is customized to match all types of high purity germanium gamma spectrometers.

Key benefits

Compared to liquid nitrogen refrigeration, recondensation refrigeration ensures reliable performance of liquid nitrogen refrigeration, avoids frequent refilling of liquid nitrogen, ensures long-term operation of the detector at low temperatures and saves on liquid nitrogen

material and manpower costs. Compared to electric cooling, recondensation cooling uses liquid nitrogen as the medium, avoiding direct contact between the detector and the chiller and greatly reducing the impact of vibration on detector performance. At the same time, it solves the major drawback of losing the cooling capacity of the electric cooler in case of power failure ensuring that the low temperature environment of the detector can stil be maintained in case of power failure, so that it can be quickly used when power is restored.

Application areas
- For use with high purity germanium detectors
- For use with other scientific instruments operating in the liquid nitrogen temperature zone

Technical Specification

LN-C Condensing Liquid Nitrogen Chiller	
Power consumption	Average power consumption 160W, system power≤ 300W
Noise level	Less than 60 dB at the distance of 1m
Machine size	Φ460x690H (mm, without detector, height adjustable)
Weight	Approx.55kg
Operating temperature	0°C to 40°C
Operating humidity	Relative humidity 5% to 80% (no condensing)
Daily maintenance	Replace or clean air filters as required

8. PA Series α Spectrometer

Product Description

PA Aeries Alpha Spectrometer is a high-performance PIPS silicon detector based radioactivity analyzer for the qualitative and quantitative analysis of radioactive materials in various environmental media. It is available in two, four, eight, twelve and twenty-four channel formats with a choice of four effective detector areas: 300mm2, 450mm2, 600mm2 and1200mm2.

Functional features

- Integrated detection chamber, pre-release, main release and multi-channel using ion implantation silicon detectors (PIPS)
- Each channel has an independent signal amplification system, fully controlled by a computer programmer
- Detector to sample distance adjustable in steps: 10 to 65 mm, 15 steps in total
- Multi-channel analyzer: 1024, 2048, 4096, 8192 channels adjustable in steps
- Clean exhaust ports are provided to reduce the accumulation of moisture and contaminants in the measurement room
- In emergency applications, measurements can be taken without establishing a vacuum status
- Low noise vacuum pump with filter at the exhaust port to remove oil contamination
- Computer programmed precision control, real-time display of vacuum level, good stability
- Runs on Windows and has a simple Chinese user interface
- The interface can display multiple measurement windows at the same time, or a single measurement window can be selected for enlarged display

Application areas

Nuclear power safety
- Nuclear material inspection monitoring
- Nuclear fuel production and reprocessing
- Radioactivity measurement in nuclear power plants
- Nuclear emergency radioactive contamination monitoring

Test analysis
- Radioactivity measurement of building materials
- Radioactivity measurement of food

Environmental and health assessment
- Radon thorium aerosol measurement
- Food inspection
- Human health

Resource exploration
- Uranium, oil, gas
- Groundwater resources
- Nuclear industry geological survey system

Higher education institutions and hospitals
- Nuclear experimental sites
- Nuclear physics laboratory
- Medicine and health
- Agricultural sciences

Technical specifications

PA SeriesaSpectrometer	
Maximum sample	diameter 2 inches
Vacuum level	≤2kPa, pressure level displayed at PC
Energy range	3~10MeV
Background count rate	≤1 cph(450mm2 detector, 3 to 10MeV)
Detection efficiency (450mm2)	≥25% (450mm2 detector, detector to source distance is the minimum allowed)
Energy resolution	Detection area of 300mm2: ≤17keV; detection area of 450mm2: ≤20kev. Detection area 600mm2: ≤25keV; Detection area 1200mm2: ≤35keV
Power supply method	AC 220V+10%,50Hz+10%
Power	80W
Communication methods	RJ45, USB
Machine size	355Hx500Wx540D(mm)
Weight	Approx.40kg
Operating temperature	5°Cto 35°C
Operating humidity	30% to 80% (25°C, no frosting)

Radiation Detection

9. LLB100 Series Low Background a β Counter, Low Background Counters (PIPS detectors)

Product Description

LLB100 Low Background a (alpha), β (beta) Counter is a high performance PIPS silicon detector based a β radioactivity analyzer that does not require a working gas and is designed for the measurement of a and β radioactivity in various environmental media or process samples. The system is designed for automatic sample exchange of up to 50 samples simultaneously.

Functional features

- Built-in screen, can be operated directly, or connected to a PC
- Automatic and manual switching, adapted to specific scenarios
- Easy to use, user-friendly interface
- Equipped with independent detectors and a parallel gas circuit system, each circuit s completely independent of the other and does not affect each other
- Data acquisition and analysis in one control software, automatic processing, storage and generation of experimental reports

Application areas

Nuclear power safety
- Nuclear material inspection monitoring
- Nuclear fuel production and reprocessing
- Radioactivity measurement in nuclear power plants
- Nuclear emergency radioactive contamination monitoring

Test analysis
- Radioactivity measurement of building materials
- Radioactivity measurement of food

Radiation Detection

Environmental and health assessment

- Radon thorium aerosol measurement
- Food inspection
- Human health

Resource exploration

- Uranium, oil, gas
- Groundwater resources
- Nuclear industry geological survey system

Higher education institutions and hospitals

- Nuclear experimental sites
- Nuclear physics laboratory
- Medicine and health
- Agricultural sciences

Technical Parameters

LLB100 Series Low Background a β Counter	
PIPS detectors	Area 2000mm2, depth 300um
Lead shielding thickness	4 in.
Sample changer	Automatic sample changer with 50 sample capacity as standard
Background	a:0.05cpm(3.0MeV~9.6MeV); β:0.6cpm(125keV~2.2MeV)
Typical efficiency (4r efficiency	241Am:39%,90Sr:29%
Volume	620Hx500Wx760D mm
Weight	Approx.350kg
Operating temperature	10°C~+40°C
Operating humidity	95%(40°C)
Power supply	220VAC; Equipped with UPS power supply, continuous work for 30 minutes after power failure
Power	Peak power less than 80W (instrument host)
External interface	RJ45, USB, VGA
Display method	7-inch touch industrial display, the screen can be extended through the VGA interface

Radiation Detection

Radioactive Contamination Monitoring System in Controlled Area

1. G331 Series Laboratory Sodium Iodide Gamma Energy Spectrometer

Product Description

G331 Laboratory Sodium Iodide Gamma Spectrometer consists of a sodium Iodide detector, a multi-channel spectrometer, a low background lead chamber and a multifunctional spectrum analysis software. It is a laboratory gamma radiation measurement equipment, used for low level radioactivity measurement of gamma samples (e.g. water, air, soil, etc.) in the environment. The accompanying spectrometer system analyses and processes the energy spectrum.

Functional features

- Built-in automatic spectrum stabilization for non-radioactive sources, no radioactive source calibration required
- Integrated low background lead chamber design with composite shielding material inside
- Total dose rate and the contribution of different nuclides to the total dose rate can be calculated
- Direct measurement or task mode selectable, measurement by appointment, automatic multiple measurements

- Control software with integrated data acquisition and analysis for spectrum acquisition, analysis, parameter setting, etc.
- Rea-time communication via standard network cable or serial port, providing a hardware interface for communication with the data collector

Application areas

Nuclear power safety

- Measurements of radioactivity in nuclear power plants and the surrounding environment
- Nuclear emergency radioactive contamination monitoring
- Monitoring of radioactive material during decommissioning of nuclear reactors

Water quality monitoring

- Radioactive environmental pollution monitoring
- Hydrological water quality monitoring
- Environmental samples with complex spectra

Test analysis

- Radioactivity measurement of building materials
- Radioactivity measurement of food

Higher education institutions and hospitals

- Reactor accelerator laboratory
- Nuclear test laboratory
- Radiation medicine

Technical Specification

G331 Series Laboratory Sodium Iodide Gamma Energy Spectrometer	
Detector type	3"x 3"Nal scintillator detector
Energy range	25keV to 3.5MeV
Multi-channelanalyzer	1024, 2048,4096 channels available
Energy resolution	≤7.5%
Background	5.0cps
Nuclide library	Industrial nuclides, medical nuclides, natural radionuclides, special nuclear materials, user-defined nuclides
Power supply method	AC 220V+10%,50Hz+10%
Communication methods	USB, RJ45
Machine size	1410Hx700Wx700D(mm)
Weight	Approx.1200kg
Operating temperature	20°C +2°C
Operating humidity	5% to 80%(no condensing)

2. G338 Series Multi-Channel Sodium Iodide Gamma Spectrometer

Product Description

G338 Multi-Channel Sodium Iodide Gamma Spectrometer consists of a well-type sodium iodide detector, an electronics system, a low background lead chamber and multifunctional spectral analysis software for rapid screening of samples following a radiological event or for rapid measurement of multiple samples in the laboratory. The system is set up with 8 detectors all positioned vertically, allowing up to 8 samples to be counted simultaneously in separate shielded 3NaI well-type radiation detectors to quickly identify radioactivity levels in radiation samples and provide critical information to emergency response agencies.

Functional features

- 8 fully independent well-type NaI(Tl) detectors
- Fast measurement, up to 800 samples in 24 hours
- Sample volume 10-50m selectable, automatic data entry by barcode scanning
- Integrated low background lead chamber design with composite shielding material inside
- Direct measurement or task mode selectable, measurement by appointment, automatic multiple measurements
- Control software that integrates data acquisition and analysis, allowing for spectrum acquisition, analysis, diagnosis, parameter setting, etc. while data can be transferred to a computer for further analysis
- Built-in nuclide library, containing nearly 400 nuclides
- Rea-time communication via standard network cable or seria port. providing a hardware interface for communication with the data collector

Application areas

Nuclear power safety
- Measurements of radioactivity in nuclear power plants and the surrounding environment
- Nuclear emergency radioactive contamination monitoring
- Monitoring of radioactive material during decommissioning of nuclear reactors

Water quality monitoring
- Radioactive environmental pollution monitoring
- Hydrological water quality monitoring
- Environmental samples with complex spectra

Test analysis
- Radioactivity measurement of building materials
- Radioactivity measurement of food

Higher education institutions and hospitals
- Reactor accelerator laboratory
- Nuclear test laboratory
- Radiation medicine

Technical Specification

G338 Series Multi-Channel Sodium Iodide Gamma Spectrometer	
Detector type	8 x 3" x 3" well type NaI scintillator detectors
Energy range	50keV~10MeV
Multi-channel analyzer	2048 Road
Energy resolution	<7.5%
Typical efficiency (4it efficiency)	241Am:39%.90Sr:29%
Lower detection limit	300s counting time with a minimum detection limit of 52Bq/L
Background	10.0cps
Nuclide library	industrial nuclides, medical nuclides, natural radionuclides, special nuclear materials, user-defined nuclides
Power supply method	AC 220V+10%, 50Hz+10%, optional UPS uninterruptible power supply
Communication methods	USB,RJ45
Machine size	734Hx724Wx707D(mm)
Weight	Approx.2000kg
Operating temperature	5 to 25°C
Operating humidity	20% to 95%(no condensing)

Radiation Detection

3. G339 Fast Track Whole Body Gamma Contamination Monitor

Product Description

G3903 Fast Track Whole Body Gamma Contamination Monitor (Gate C3) is a device for use at the entrance/exit of the nuclear power plants or related nuclear facilities, and for rapid whole body gamma contamination monitoring of personnel The measurement process can be completed by staff walking through gate C3 at normal speed without stopping, meeting the requirements of peak commuter traffic.

Functional features

- Complementary and balanced layout of detectors, no blind spots in the measurement area
- Dual camera and dual placeholder design for bi-directional walk-through
- Dynamic updating of the background, with measured values displayed as net count rate or radioactivity
- The software automatically scales at regular intervals and saves the results
- The instrument can be remotely commissioned and monitored from a distance using a handheld device
- Can be connected to the computer of monitoring center and the security duty room to achieve remote monitoring functions
- All stainless-steel housing and IP65 overall waterproof design

Application areas

- Sanitary access exits of nuclear power plant control areas
- Sanitary access exits of nuclear medical and scientific research laboratories
- Sanitary access exits of nuclear energy facility plant control areas

Radiation Detection

Technical specifications

G339 Fast Track Whole Body Gamma Contamination Monitor			
Detector type	14 large area plastic scintillators (6 on the left, 6 on the right, 1 on the top, 1 on the bottom, total volume 88L)		
Effective detector area	17600cm2		
Pedestrian passing speed	5km/h		
Pedestrian passage rate	2000 person/hours		
Energy range	50keV ~3MeV		
Lead shielding thickness	25mm		
	Radioactive sources	Minimum detectable activity	Test conditions
Lead shielding thickness	6Co 137CS	800Bq 1.60kBq	Measurement time 10s, confidence level 99% radioactive source in the center of the monitor location
Lower limit of dynamic detection	60Co	3.00kBq	0.1uSv/h underneath this bottom, 99% confidence level normal walk-through of radioactive source over (5km/h)
Alarm methods	Audible and visual alerts for alarms, faults and background abnormalities		
Power supply method	AC 220V+10%,50Hz+10% (optional UPS for 3 hours continuous power supply)		
Communication methods	RJ45		
Display method	8"industrial LCD touch screen		
Housing material	304 stainless steel		
Machine size	External dimensions: 2300H x 800W x 800D(mm); internal dimensions: 2100H x 600W x 800D(mm)		
Weight	Approx.1200kg		
Protection class	IP65		
Working environment	Operating temperature: 0C to 40C; Operating humidity: <95% (no condensing)		

4. G390 Whole Body Gamma Contamination Monitor

Product Description

G390 Whole Body Gamma Contamination Monitor (gate C1) is a device developed and designed by SHUOBODA for the detection of whole body gamma contamination of personnel at the exit of a radioactive sanitary pathway in a nuclear power plant or related nuclear facility. The instrument uses a large area high performance plastic scintillator detector with an original blind spot free detector design method, which can monitor the whole body gamma radioactive contamination and indicate the location of contamination.

Functional features

• Detector with blind spot free design and large area high performance plastic scintillator detector

• Rapidly scans and detects radioactive contamination and accurately locates contaminated areas

• 6 pairs of infrared occupancy sensors for accurate detection of personnel access and occupancy

• Lead shielding on non-detecting surfaces to reduce the effects of external radiation

• Connectable to a monitoring center for remote monitoring, with continuously adjustable alarm thresholds

• Optional English and Chinese interface and beeps

Application areas

• Sanitary access exits of nuclear power plant control areas

• Sanitary access exits of nuclear medical and scientific research laboratories

• Sanitary access exits of nuclear energy facility plant control areas

Radiation Detection

Technical specifications

Physical properties	
Detector type	14 large area plastic scintillators (6 on the left, 6 on the right, 1 on the top, 1 on the bottom, total volume 76L)
Effective detector area	15200cm2
Energy range	50keV ~3MeV
Lead shielding thickness	25mm
Working mode	Standing measurement (measuring time < 10 s), walk-through measurement
Lower detection limit	1600Ba (measured for 10s at 0.1uSv/h ambient backaround,99% confidence, source 2 Cs placed in the middle of the monitor)
Electrical characteristics	
Power supply method	AC 220V+10%,50Hz+10%
Power	100W
Communication methods	RJ45
Mechanical properties	
Display method	10.4" color LCD touchscreen
Machine size	External dimensions: 2350H x 865W x 850Dmm); internal dimensions: 2000H x 600W 700D(mm)
Weight	Approx.1200kg
Environmental characteristics	
Operating temperature	0°c to 40°C
Operating humidity	<95%

5. AB333 Whole Body Surface Alpha and Beta Contamination Monitor

Product Description

AB333 Whole Body Surface Alpha and Beta Contamination Monitor (gate C2) is installed at the sanitary access exit of the radioactive control area of a nuclear power plant or related nuclear facility to monitor the possible contamination of all parts of the body of staff leaving the control area When the user-set alarm threshold is exceeded, the instrument will generate an audible and visual alarm and display the contamination location on the LCD screen, allowing for timely detection and prevention of contamination transfer. It can be widely used in the sanitary access exits of the nuclear plants, nuclear facilities, nuclear power plants.

Functional features

- High performance sheet plastic scintillator plus zinc sulfide detector
- Reasonable detector arrangement to meet whole body pollution monitoring requirements
- Liftable detector for head to accommodate different heights
- Two-step measurement mode
- Rapidly scans and detects radioactive contamination and accurately locates contaminated areas- Optional English and Chinese interface and beeps
- Continuously adjustable alarm thresholds
- Can be connected to a monitoring center for remote monitoring

Application areas

- Sanitary access exits of nuclear power plant control areas
- Sanitary access exits of nuclear medical and scientific research laboratories

Radiation Detection

- Sanitary access exits of nuclear energy facility plant control areas

Technical specifications

Physical properties	
Detector type	27 plastic scintillators in sheets, coated with ZnS(Ag)
Measurement range	Head, body, hands, legs, feet
Measuring height	160-200cm
Energy range	α: 3MeV~10 MeV; β :50 keV~3 MeV
Lower detection limit	Body: α: 0.02Bq/cm2; β :0.2Bq/cm2
	Foot: α: 0.04Bq/cm2; β :0.4Bq/cm2
Detection efficiency	Body:241Am ≥25%;90Sr ≥25% ;Feet: 241Am≥ 15%;90Sr≥15%
Electrical characteristics	
Power supply method	AC 220V+10%,50Hz+10%
Power	200W
Communication methods	USB, RJ45
Mechanical properties	
Display method	12.1" color LCD touchscreen
Machine size	External dimensions: 2350H x 1000W 1200D(mm); internal dimensions: 2000H x 500W x 1160D(mm)
Weight	Approx500kg
Environmental characteristics	
Operating temperature	0°c to 40°C
Operating humidity	<95%

Radiation Detection

6. AB335 Hand and Foot Surface Contamination Monitor

Product Description

AB335 Hand and Foot Surface Contamination Monitor is primarily used for safety testing of personnel in radioactive plants such as nuclear power plants, nuclear processing plants and nuclear waste warehouses etc. The instrument focusing on the presence of radioactive contamination on the surfaces of key parts of personnel such as hands, feet and clothing. When alpha and beta rays are detected on the surface of key parts of the person's hands, feet and clothing exceeding the threshold, the instrument issues an alarm and indicates the degree of contamination of the hands, wrists, feet and clothing to ensure that the personnel leave without contamination.

Functional features

- Large color touchscreen LCD
- Audible and visual alarm, visual indication of contaminated areas
- Movable detector to detect clothing contamination
- Robust and durable, no routine maintenance required
- Hand detectors can be customized for installation

Application areas

- Sanitary access exits of nuclear power plant control areas
- Sanitary access exits of nuclear medical and scientific research laboratories
- Sanitary access exits of nuclear energy facility plant control areas

Technical specifications

Physical properties

Radiation Detection

Detector type	6 plastic scintillators in sheets, coated with ZnS(Ag)
Measurement range	Palms, backs of hands, soles of feet, clothing
Effective detector area	2600cm2
Energy range	α: 3MeV~10 MeV; β :50 keV~3 MeV
Lower detection limit	Body: α: 0.02Bq/cm2; β :0.2Bq/cm2 Foot: α: 0.04Bq/cm2; β :0.4Bq/cm2
Detection efficiency	Body:241Am ≥25%;90Sr ≥25% ;Feet: 241Am≥ 15%;90Sr≥15%
Electrical characteristics	
Power supply method	AC 220V+10%,50Hz+10%
Communication methods	RJ45
Mechanical properties	
Display method	12.1" colour LCD touchscreen
Machine size	1240Hx890Wx750D(mm)
Weight	Approx.60kg
Environmental characteristics	
Operating temperature	0°c to 40°C
Operating humidity	<95%

Radiation Detection

7. HFC Hand and Foot Surface Contamination Monitor

Product Description

HFC Hand and Foot Surface Contamination Monitor (hereinafter referred to as the monitoring system) is mainly used to detect the safety of personnel in nuclear medicine departments radiopharmaceutical plants, irradiation centers and other radioactive plants, focusing on the detection of radioactive contamination on the surface of the key parts of the person's hands and feet. When alpha and beta rays are detected on the surface of a person's hands and feet, the instrument will sound an alarm and indicate the leve of contamination on the hands and feet to ensure that the person leaves without contamination

Functional features

• 4 thin plastic scintillator + ZnS(Ag) detectors, total area 1800 cm2
• Industrial control machine controlled, windows operating system
• 10.1" LCD touch screen, visual display of contaminated areas, voice prompts for measurement steps, audible and visual alarms
• IC card reader, personal identification
• Ergonomic and comfortable to use. hand detector with automatic sliding lid to avoid secondary contamination
• RJ45 network port,4G communication, WIFI communication
• Can be connected to a monitoring center for remote monitoring

Application areas

• Sanitary access exits of nuclear power plant control areas
• Sanitary access exits of nuclear medical and scientific research laboratories
• Sanitary access exits of nuclear energy facility plant control areas

echnical specifications

Radiation properties	
Probes	4 plastic scintillators + ZnS(Ag) detector
Detector size	Hands :20cm x 18cm Feet :34cm x 17cm
Detector area	Approx.1800cm2
Energy range	α: 3MeV~10 MeV; β :50 keV~3 MeV
Surface Emissivity Response	Hands : 241Am: ≥25%; 90Sr/ 90Y: ≥25%; Foot : 241Am: ≥ 15%, 90Sr/ 90Y: ≥ 15%
Lower detection limit	Hands:241Am ≥25%;90Sr ≥25% ;Feet: 241Am≥ 15%;90Sr≥15%
Structure features	
Size	1500Hx480Wx670D(mm)
Weight	Approx.55kg
Electrical characteristics	
Power supply	220V AC /50Hz
Show	10.1" colour LCD touchscreen
Communication interface	RJ45, 4G, WIFI support

8. G337 Tool and Small Object Gamma Contamination Monitor

Product Description

G337 Tool and Small Object Gamma Contamination Monitor is suitable for monitoring tools, laptops, calculators, etc. for radioactive contamination within the control area of nucleal power plants and other sites, preventing contaminated tools from escaping and preventing the secondary radioactive contamination outside the control area

The detection unit uses a large plastic scintillator of the same size, matched with a high performance photomultiplier tube to form a separate detection unit surrounded by a 25mm thick lead shield to reduce interference from the natura background, to achieve a fast response determine the level of radioactive contamination and accurately locate the contaminated area.

Functional features

- Automatic background measurement and update. direct LED display of measurement status
- Audible and visual alarms, voice prompts, continuously adjustable alarm thresholds
- Industrial computer control, color LCD touch screen with shortcut keys
- Measurement results are displayed in optional units
- Visualization of pollution distribution areas

Application areas

- Sanitary access exits of nuclear power plant control areas
- Sanitary access exits of nuclear medical and scientific research laboratories
- Sanitary access exits of nuclear energy facility plant control areas

Radiation Detection

Technical specifications

Physical properties		38 /
Detector type	4 (or optionally 6) plastic scintillator detectors	
Detector volume	24L	
Energy range	50keV ~ 3MeV	
Lead shielding thickness	25mm	
Lower detection limit	120Bq (4 detectors, 10s measurement at 0.1uSv/h ambient background, 99% confidence, 137Cs source placed on middle part of the monitor)	
Mechanical properties		
External dimensions	1100H x 500W x 650D(mm) (excluding monitor height)	
Internal dimensions	350Hx300Wx500D(mm)	
Weight	Approx.420kg	
Environmental characteristics		
Operating temperature	0°c to 40°C	
Operating humidity	<95%	

9. Nuclear Power Plants Training Simulation System for Radiation Monitoring at Sanitary Entrances and Exits

Product Description

Nuclear Power Plants Training Simulation System for Radiation Monitoring at Sanitary Entrances and Exits is independently designed manufactured by SHUOBODA and as a set of detection training simulation system for staff of the entrance and exit of nuclear power plant or nuclear facilities site. The system is a comprehensive simulation from several aspects such as appearance, hardware and software functions to restore the real scene on site. Through the actual operation of the simulation equipment, the participants can strengthen their knowledge of the sanitary entrance and exit equipment of the control area understand the flow of entry and exit of the control area, and improve the radiation protection training effect.

Functional features

- Simulation of control area access flow.
- Simulation measurement process of gate C1, correction of occupancy errors and post-alarm handling.
- Simulation measurement process of gate C2, correction of occupancy errors and post-alarm handling.
- Simulation measurement process of the CPO and post-alarm handling.
- Simulating the use of the turn-on device of the personal dosimeter.
- Simulation measurement process of the EPD and post-alarm handling.
- Correctly judgement of the waiting posture of trainees for inspection and correct the wrong posture through voice prompts.
- Tablet remote alarm.
- Computers with tutorial video are equipped at the entrance of Gate C2.
- Exterior dimensions and alarm sound are identical to the rea machine.
- The software interface and measurement process are identical to the real machine on site.

Technical specifications

Model number	Product abbreviations	Display screens	Specification size
G390-S	Gate C1	12.1"	2190Hx940Wx603D(mm)
AB333-S	Gate C2	Main screen 12.1"secondary screen12.1"	2350Hx1000Wx1200D(mm)
G337-S	CPO	5.6	700Hx700Wx1000D(mm)
G316-R	Personal Dose Readout	Display screens	276Hx261Wx80D(mm)
B3S	Triangular roller gates		420Hx240Wx1000D(mm) Length of gate lever 500mm
G316-S	Personal dosimeter simulator		87Hx62Wx30D(mm)

Entrance and exit radioactive material monitoring system

1. G391 Series Vehicle Portal Radiation Monitoring System

Product Description

G391 Vehicle Portal Radiation Monitoring System is mainly used to monitor trucks, container vehicles, trains and other vehicles for excessive radioactive substances which can effectively prevent the illegal carriage and spread of radioactive substances, and has been widely used in physical security in nuclear facilities, homeland security, steel recycling and processing smelting industry, etc.

Functional features

- A break of traditional forms and a new monolithic design that integrates the detection box with the standing column
- Modular design, concealed cable routing, no need of open maintenance
- 360° all round audible and visual alarm
- optional 2 or 4 large area plastic scintillator detectors, i.e., optional total detector volume 50L or 100L
- Lead shielding on non-detecting surfaces to prevent false alarms
- Real-time visualization of vehicle passage, alarm information and the location of the radioactive source
- Multi-point deployment to form a regional wireless radio monitoring network with remote alarm
- Rich configuration interface for easy functional expansion
- Optional 3He neutron detector

- Expandable modules for online nuclide recognition, container number plate (license plate) recognition automatic pole lift. etc.
- Complies with GB/T 24246-2009 standard

Application areas

- Radioactivity monitoring at entrances and exits of nuclear plants, nuclear facilities, nuclear power stations, etc., to prevent the spread of radioactive materials
- Radiological inspection of container vehicles, train cargo at customs gates, airports and cargo yards, etc.
- Monitoring the presence of radioactive material in vehicles for entrances and exits of metal smelters, scrap steel distribution sites, etc.
- Sanitary entrances and exits of CDC health centers, hospitals, etc.

Technical specifications

Physical properties	
Monitoring area	4 γ detectors: height: 0.1m to 4.5m; width: 5 to 6m (double side detector)
	2 γ detectors: height: 0.1m to3m; width: 5 to 6m (double side detector)
Energy range	Gamma: 20keV ~3MeV; Neutron: 0.025eV ~14MeV (optional)
Sensitivity	Alarm within 1 second for an increase of 0.04 uSv/h at a background level of 0.2uSv/h; probability ofdetection:99.9%
False alarm rate	≤0.1%
Electrical characteristics	
Power supply method	AC 220V+10%,50Hz+10%
Communication methods	RJ45
Environmental characteristics	
Protection class	IP65
Operating temperature	-30°C to 50C
Operating humidity	<95% (no condensing)

2. G391-I Series Vehicle Portal Radionuclide Identification Monitoring System

Product Description

G391-I Vehicle Porta Radionuclide Identification Monitoring System is mainly used to monitor vehicles, trucks, container vehicles, trains and other vehicles for the presence of excessive radioactive substances and to achieve radionuclide identification. It can effectively prevent the illegal carriage and proliferation of radioactive substances. It has been widely used in the physical security of nuclear facilities, homeland security and steel recycling and processing smelting industries

Functional features

- A break of traditional forms and a new monolithic design that integrates the detection box with the column
- Modular design, concealed cable routing, no need of open maintenance
- 360°all round audible and visual alarm
- Choice of 2, 4 or 8 high sensitivity sodium iodide detectors, individual detector volumes 1L, 2L available
- Lead shielding on non-detecting surfaces to prevent false alarms
- Real-time graphical display of vehicle passage, alarm information and location of radioactive sources
- Multi-point deployment to form a regional wireless radio monitoring network with remote alarm
- Rich configuration interface for easy functional expansion
- Optional 3He neutron detector
- Expandable modules for online nuclide recognition, container number plate (license

plate) recognition, automatic pole lift, etc.

•   Complies with GB/T 24246-2009 standard

Application areas

•   Radioactivity monitoring at entrances and exits of nuclear plants, nuclear facilities, nuclear power stations, etc. to prevent the spread of radioactive materials

•   Radiological inspection of container vehicles, train cargo at customs gates, airports and cargo yards, etc.

•   Monitoring the presence of radioactive material in vehicles for entrances and exits of meta smelters, scrap steel distribution sites, etc.

•   Sanitary entrances and exits of CDC health centers, hospitals, etc.

Technical specifications

Physical properties	
Monitoring area	4 γ-detectors: height: 0.1m to 4.5m; width: 5 to 6m (double side detector) 2 γ-detectors: height: 0.1m to3m; width: 5 to 6m (double side detector)
Energy range	Gamma:20keV ~3MeV; Neutron:0.025eV ~14MeV(optional)
Energy resolution	≤8%
Sensitivity	Alarm within 1 second for an increase of 0.04uSv/h at a background level of 0.2uSv/h; probability ofdetection:99.9%
False alarm rate	≤0.1%
Electrical characteristics	
Power supply method	AC 220V+10%,50Hz+10%
Communication methods	RJ45
Environmental characteristics	
Protection class	IP65
Operating temperature	-30°C to 50C
Operating humidity	<95% (no condensing)

3. G392 Pillared Pedestrian and Luggage Radionuclide identification monitoring system

Product Description

G392 Pillared Pedestrian and Luggage Radionuclide identification Monitoring System uses a large volume NaI (TI) gamma detector that combines dose rate measurement and nuclide identification technology to quickly and effectively identify passing pedestrians and luggage for radionuclide screening.

Functional features

- Large volume NaI scintillator detectors
- Real-time count rate and dose rate alarms, real-time nuclide identification
- Automatic spectrum stabilization technology with high environmental adaptability
- Local audible and visual alarms, over threshold audible and visual alarms, user adjustable alarm thresholds
- ANSI-compatible nuclide library including special nuclear materials, industrial nuclides, medical nuclides, natural radionuclides and user-defined nuclides
- Self-rechargeable battery for flexible deployment
- Multi-point deployment to form a regional radiological surveillance network

Application areas

- Customs
- Airport

Radiation Detection & Protection Equipment

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Radiation Detection

- Stations
- Maior Events & Venues
- Hospital
- Nuclear power plants
- Nuclear material extraction

Technical specifications

Physical properties	
Detector type	Gamma: 0.2L NaI scintillation crystals; Neutron: ^{6}LiI(Eu) scintillation crystals (optional)
Monitoring area	Height: 0.1m ~ 2m; Width: 1.5m (double side detector)
Energy range	Gamma: 20keV ~ 3MeV
Sensitivity	0.1μSv/h increase, alarm within 1 second; probability of detection: 99.9% (background level of 0.2μSv/h)

Static detection lower limit	Radiation sources	Activity
	^{241}Am	740kBq (20μCi)
	^{137}Cs	360kBq (9.7μCi)
	^{60}Co	350kBq (9.5μCi)

False alarm rate	0.1μSv/h increase, alarm within 1 second; probability of detection: 99.9% (background level of 0.2μSv/h)

Electrical characteristics	
Communication methods	RJ45
Power supply method	AC 220V±10%, 50Hz±10%; lithium-ion rechargeable battery (>8 hours of battery life)

Mechanical properties	
Machine size	Φ76×1100(mm)
Single column weight	≤ 10kg

Environmental characteristics	
Protection class	IP54
Operating temperature	0°C to 40°C
Operating humidity	≤ 95% (no condensing)

Radiation Detection

4. G393 Portal Pedestrian and Luggage Radiation Monitoring System

Product Description

G393 Portal Pedestrian and Luggage Radiation Monitoring System is aradioactive material monitoring equipment specifically designed by SHUOBODA for entrance andexit of large event venues and entry and exit security lanes. It features with high sensitivitywide detection range and short response time, with the functions of automatic radiation alarmand automatic data storage, etc. It can be applied to the entrance and exit or passageway ofmany places, such as homeland border, port and sanitary entrance and exit, etc.

Functional features

- 2 x 15L large area plastic scintillator detectors as standard
- OPtional HD camera with rea -time imace display of pedestrians passing and automatic or manua capture of imaces.
- Real-time dynamic backcround monitoring to ensure that alarm thresholds are dynamically updated with backgrouncfluctuations
- Audible and visual alarm function, artificially controllableAutomatic radiation alarm, automatic alarm data storage, automatic storace of measurement logs
- Multi-point deplovment and remote operation possible

- Optional 3He neutron detector
- Conforms to GB/ T24246-2009 standard

Application areas
- Customs
- Environmentalprotection agency
- Major events & venues
- Nuclear power plants
- Airports
- Ports

Technical specifications

Physical properties	
Detector type	Gamma: 2 x 15L plastic scintillators; Neutron: ³He positive counter tube (optional)
Monitoring area	Height: 2.1m, Width: 1.5m
Energy range	Gamma: 20keV ~ 3MeV; Neutron: 0.025eV ~ 14MeV (optional)
Sensitivity	Gamma: 0.04μSv/h increase, alarm within 1 second (background level of 0.2μSv/h) Neutrons: 2 x 104/s of ^{252}Cf passing through the detection area at 1.2m/s with an alarm rate of >98%
Shielding method	3mm thick lead shielding substrate for non-detecting surfaces
False alarm rate	≤ 0.1%
Detection objects	Pedestrians and objects
Standard passing speed for pedestrians	1.2m/s
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Communication methods	RJ45
Mechanical properties	
Machine size	2400H x 2000W x 600D (mm)
Weight	230kg
Environmental characteristics	
Operating temperature	0°C to 40°C
Operating humidity	≤ 95% (no condensing)

5. G393-I Portal Pedestrian and Luggage Radionuclide Identification Monitoring System

Product Description

G3930-I Portal Pedestrian and Luggage Radionuclide identification Monitoring System is a radioactive material monitoring equipment specifically designed by SHUOBODA for entrance and exit of large event venues and entry and exit security lanes. It uses a highly sensitive gamma detector and a newly designed spectral analysis algorithm, it combines dose rate measurement, nuclide identification and neutron measurement technologies to quickly and effectively screen the radioactivity of passing pedestrians and the accompanying luggage to determine whether radioactive substances are carried, effectively providing security against illegal carriage of radioactive substances.

Functional features

- Modular detector design with 5mm thick lead shielding on the non-detecting side of the gamma detector
- HD camera with rea-time pictorial display of pedestrians passing, automatic or manual capture
- Automatic radiation alarm, automatic alarm data storage, automatic storage of measurement logs

- Rea-time display of gamma count rate, dose rate and real-time nuclide identification results: real-time display of neutron count rate
- Environmental adaptability using natural K-40 automatic spectrum stabilization technology- Real-time dynamic background monitoring to ensure that alarm thresholds are dynamically updated with background fluctuations
- Audible and visual alarm function, artificially controllable
- Multi-point deployment and remote operation possible
- ANSI-compatible nuclide library, including special nuclear materials, industrial nuclides, natural radionuclides and user-defined nuclides
- Complies with GB/T 31836-2015, ANSI N42.42 and other relevant standards

Application areas

Customs gates, airports, ports, environmental agencies, nuclear power stations, etc.

Technical specifications

Physical properties	
Detector type	Gamma: 2 x 2L NaI(Tl) scintillation crystals; Neutron: ^{3}He positive counter tube (optional)
Monitoring area	Height: 2.1m, Width: 1.5m
Energy range	Gamma: 20keV ~ 3MeV; Neutron: 0.025eV ~ 14MeV (optional)
Sensitivity	Gamma: 0.04μSv/h increase, alarm within 1 second (background level 0.2μSv/h) Neutrons: 2 x 104/s of ^{252}Cf passing through the detection area at 1.2m/s, alarm rate > 98%
Shielding method	5mm thick lead shielding substrate for non-detecting surfaces
False alarm rate	≤ 0.1%
Detection objects	Pedestrians and objects
Standard passing speed for pedestrians	1.2m/s
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Communication methods	RJ45
Mechanical properties	
Machine size	2400H×2000W×600D(mm)
Weight	230kg
Environmental characteristics	
Operating temperature	0°C to 40°C
Operating humidity	≤ 95% (no condensing)

6. G394 Portal Luggage Radioactivity Monitoring System

Product Description

G394 Portal Luggage Radioactivity Monitoring System is a device for radioactive detection of traveling packages, with high sensitivity, wide detection range and short response time. The product can be used in a variety of entrances and exits or passage, such as homeland borders and ports, etc.

Functional features

- 1 x 12.5L large area plastic scintillator detector as standard, optional Nal detector
- Modular design with lead shielding on the non-detecting side
- Distinguishable between naturally occurring radioactive material and special nuclear material
- Continuously adjustable alarm thresholds
- Multi-point deployment and remote operation possible
- Optional 3He neutron detector available.
- Expandable HD video capture system, online nuclide identification module
- Complies with GB/T 24246-2009 standard requirements

Application areas

- Radioactivity monitoring at entrances and exits of nuclear plants. nuclear facilities, nuclear power stations. etc. to prevent the spread of radioactive materials
- Radiological inspection of container vehicles, train cargo at customs gates, airports and cargo yards, etc.
- Monitoring the presence of radioactive material in vehicles for entrances and exits of metal smelters, scrap steel distribution sites, etc.
- Sanitary entrances and exits of CDC health centres, hospitals, etc.

Technical specifications

Physical properties	
Detector type	12.5L plastic scintillator
Monitoring area	Height: 0.1 m~1m; Width: 1m
Energy range	Gamma: 20keV to 3MeV; Neutron: 0.025eV to 14MeV (optional)
Sensitivity	0.04μSv/h increase, alarm within 1 second (background level of 0.2μSv/h)
Shielding method	3mm thick lead shielding substrate for non-detecting surfaces
False alarm rate	≤ 0.1%
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Communication methods	RJ45
Mechanical properties	
Machine size	1486H×930W×400D(mm)
Display method	4.3" LCD screen
Environmental characteristics	
Operating temperature	0°C to 40°C
Operating humidity	≤ 95% (no condensing)

Portable nuclear radiation detection series

1. 1000G Multifunctional Radiation Survey Detector

Product Description

1000G Multifunctional Radiation Survey Detector is a multifunctional radiation meter with a host of intelligent detectors that can be hot-swapped to measure alpha, beta, gamma and n radiation levels in an integrated manner, making it a versatile system that covers almost all environmental monitoring and radiation protection measurements

1000GH Multifunctional Radiation Meter Mainframe

- 2.8"LCD screen with built-in energy compensated GM tube
- Energy range: 50keV ~3MeV
- Dosage rate range: 100nSv/h ~ 100mSv/h (scalable to 10Sv/h)
- Sensitivity: 1.0cps/(μSv/h)
- Dimensions: 30Hx 94W x 165D(mm)
- Weight 360g, can be used as a standalone radiation alarm

Radiation Detection

AB1000 α, β, γ detector

- Thin plastic scintillator (ZnS coated) detectors
- Detection window area: 100 cm2
- Detection efficiency: α > 15% @ 241Am; β> 25% @ 90Sr + 90γ
- Background: α < 0.1s-1, β<20s-1
- Dimensions:130H x 95W x 355D(mm)
- Weight: 460g

NA1000 High Sensitivity Gamma Detector

- 2'' x 2'' high sensitivity Nal detector
- Energy range: 30keV ~3MeV
- Dose rate range: 10nSv/h to 100µSv/h
- Sensitivity: >1500cps/(µSv/h)
- Size:中 58x275(mm)
- Weight: 740g

ND1000 Neutron Detector

- Highly sensitive 6Lil (Eu) neutron detector
- Energy range: 0.025eV to 16MeV
- Dose rate range: 0.1µSv/h to 100mSv/h
- Neutron sensitivity: 0.6cps/(µSv/h), @ 252Cf
- Size: Φ85x320(mm)

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- Weight: 955g

GD1000 Environmental x, γ radiation detector

- 76mm x 76mm composite scintillator detector
- Energy range: 33keV to 7MeV
- Dose rate range:10nSv/h to 100μSv/h
- Sensitivity:>2000cps/(μSv/h) @ 137Cs
- Dimensions: 216H x97W x 350D(mm)
- Weight: < 2kg
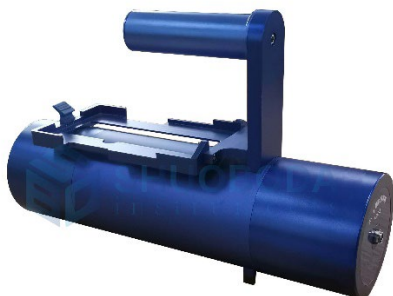
GM1000 Wide Range Gamma Detector

- Dual GM tube detectors
- Energy range: 50keV ~3MeV
- Dose rate range: 0.1μSv/h to 10Sv/h
- Size: Φ43x223(mm)
- Weight: 261g

Radiation Detection

Extension Pole

- Long pole meter with double GM tube detector and mainframe
- Extension length: 1.2m to 4m
- Weight:<1.5kg

Application areas

- Environmental radiation monitoring of nuclear power plants, nuclear emergency response.
- Personal radiation protection monitoring in the workplace, surface radiation contamination measurement, dose rate measurement.
- Simultaneous measurement of neutrons and gamma rays in a mixed radiation area to search for hidden radioactive sources.

Radiation Detection

2. G314 Environmental x, γ dose equivalent (rate) meters

Product Description

G314 is a new environmental grade X-ray and gamma radiation dose equivalent(rate) meter. The system consists of a highly sensitive composite scintillator detector and a mainframe unit with excellent energy response and radiation response performance, accurate dose equivalent measurements and a rapid response to slight increases in radiation levels.

Functional features

- Large volume composite scintillator detector with built-in GM tube and wide energy response
- High sensitivity and fast response to weak radioactivity
- Automatic high and low range switching function, continuously adjustable dose and dose rate alarm thresholds
- Large LCD display with manual or automatic sensing of the backlight
- Waterproof and wear-resistant aluminum housing, corrosion-resistant, protection class IP66
- Optional special tripod for outdoor spot monitoring

Application areas

- Homeland Security
- Nuclear Emergency Response
- Environmental monitoring
- Nuclear power plants
- CDC and health surveillance agencies
- Nuclear-related fields

Radiation Detection

Technical specifications

Physical properties		
Detector type	Φ76×76(mm) Large volume composite scintillator	Φ13×54(mm) GM tube, built-in to the mainframe
Energy range	20kev ~ 7Mev	20kev ~ 7Mev
Dose rate range	10nSv/h ~ 100μSv/h	50keV ~ 3MeV
Sensitivity	>2000cps/(μSv/h), @^{137}Cs	1.0cps/(μSv/h)
Relative inherent error	≤ 10%, @^{137}Cs	
Measurement repeatability	≤ 6%	
Electrical characteristics		
Power supply method	Rechargeable lithium-ion battery (> 60 hours of operation for mainframe alone, > 16 hours of operation for complete unit)	
Communication methods	USB	
Data storage	Built-in mass storage (20,000 data sets)	
Mechanical properties		
Machine size	220H×100W×350D(mm)	
Weight	≤ 2.1kg	
Environmental characteristics		
Protection class	IP66	
Operating temperature	0°C to 40°C	
Operating humidity	≤ 95% (no condensing)	

3. I000G-T High Range X, Y Dose Rate Telescope Meter

Product Description

1000G-T High Range X, Y Dose Rate Telescope Meter with double GM tube detector and special telescopic pole can be used for high radiation dose measurements as well as for rapid inspections in nuclear emergency situations in nuclear power plants.

Functional features

- Imported double GM tube detector, wide dose rate display range
- Search alarm function
- Three-level safety alarm threshold, freely adjustable
- Telescopic pole extends to 4m for ease of use
- Ability to manually switch to mainframe display to measure peripheral radiation
- Easy to carry with special backpack

Application areas

- Nuclear power plants
- Highly discharged waste
- Decommissioning of nuclear facilities
- Customs, terminal cargo inspection
- Search for radioactive sources
- Radiation protection for nuclear regulatory and source-related "enterprises and institutions

Radiation Detection

Technical specifications

Physical properties	
Detector type	Dual GM tube detector (GM tube detector built into mainframe)
Energy range	50keV ~ 3MeV
Dose rate range	100nSv/h~10Sv/h
Electrical characteristics	
Power supply method	Lithium-ion rechargeable battery with >40 hours of use
Communication methods	USB
Mechanical properties	
Weight	< 1.5kg
Environmental characteristics	
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

Radiation Detection

4. 1000G-TD Dual Detector Telescopic Rod X, Y Dose Rate Meter

Product Description

The1000G-TD Dual Detector Telescopic Rod X, Y Dose Rate Meter is designed and manufactured by SHUOBODA, it is an X and Y radiation detection equipment, the equipment mainly consists of 2 double GM tube detectors, telescopic rod, mainframe and lithium battery etc. The 2 double GM tube detectors communicate with the mainframe via Bluetooth. The 2 double GM tube detectors are powered by lithium batteries with an on/off switch and a battery level indicator.

Functional features

• Dose rate over threshold alarm, cumulative dose over threshold alarm, adjustable alarm threshold
• Automatic recording of measurement data in the event of an alarm
• Continuous data storage function with adjustable storage interval
• Alarm logs, continuously stored data can be exported via USB cable or WIFI
• Visual display of dose rate and cumulative dose, with cumulative dose clearing function
• Three measurement units: Sv, Gy and R, with easy and fast unit switching
• Communication between mainframe and detector via Bluetooth
• Mainframe with 5-point capacitive screen, protection class IP67
• Telescopic pole extends to 4m for ease of use

Technical specifications

Physical properties	
Detector type	2 double GM tube detectors
Energy range	50keV ~ 3MeV
Dose Equivalent Rate Range	0.1μSv/h ~ 10Sv/h
Dose Equivalent Range	0.1μSv ~ 10Sv
Relative inherent error	≤ ±20% or less @ ^{137}Cs
Repeatability	≤ 6%
Electrical characteristics	
Power supply method	Dual detector endurance > 30 hours (lithium-ion rechargeable battery); mainframe endurance > 24 hours
Communication methods	Communication between detector and host: Bluetooth; Data export: USB, WIFI
Mechanical properties	
Weight	≤ 2.1kg
Environmental characteristics	
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

Application areas

- Highly displaced waste from nuclear power plants
- Decommissioning of nuclear facilities
- Search for radioactive sources
- Customs, terminal cargo inspection
- Radiation protection for nuclear regulatory and "source-related" enterprises and institutions

Radiation Detection

5. AB321 Alpha Beta Surface Contamination Monitor
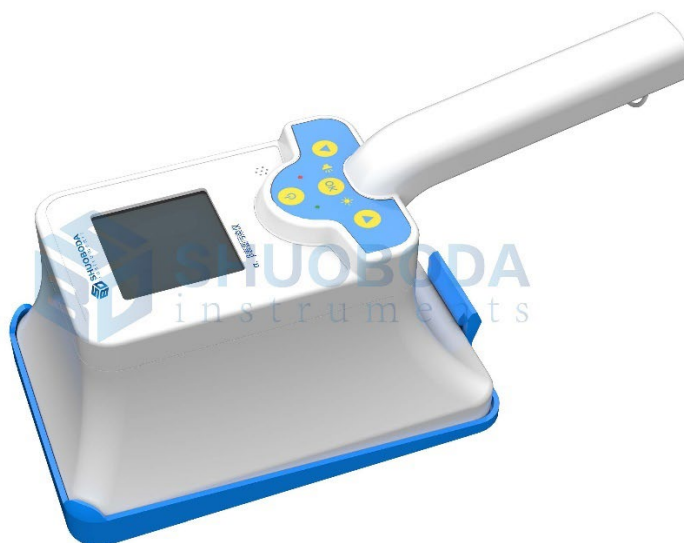
Product Description

AB321Alpha Beta Surface Contamination Monitor is a portable surface contamination monitoring device. The instrument uses a plastic scintillator probe coated with ZnS and is designed to detect contamination on surfaces or the alpha and beta contamination of wiped testing samples. It can be used to test contamination on the surface of worktops, floors, walls, clothing, human skin and other surfaces in radioactive workplaces or laboratories. The instrument can be used either fixed or mobile.

Functional features

- Large LCD display with manual or automatic sensing of the backlight
- Lightweight,4 keys for one-handed operation
- Shortcut keys to switch between α, β and α + β measurements without additional probe
- Alarm thresholds can be set continuously
- User friendly interface with password protected advanced menu
- 26 freely editable nuclide libraries with automatic background deduction
- Test stand to protect the instrument from contamination, with optional calibration piece
- Optional GM tube for extended gamma detector capability

Application areas

- Homeland security
- Environmental monitoring
- CDC and health surveillance agencies
- Nuclear emergency response
- Nuclear power plants
- Nuclear-related fields

Technical specifications

Physical properties	
Detector type	ZnS coated thin film plastic scintillator detector with optional GM tube detector
Single probe incident window area	170cm²
Unit	cps, Bq, Bq/cm²
Background deductions	Deductive and non-deductive background optional, background measurement time settable
Background count rate	α: < 0.1cps, β: < 20cps
Detector efficiency	^{241}Am: ≥ 33%, ^{90}Sr/ ^{90}Y: ≥ 35%
Repeatability	< 10%
Relative inherent error	≤ ±25%
Measurement time	Timed measurement function, time 1s to 999s continuously adjustable
Alarm methods	Audible and visual alarm
Nuclide Library	26 nuclei with reset, auto-calibration
Electrical characteristics	
Power supply method	2 alkaline 5 or NiMH rechargeable batteries for more than 35 hours of continuous operation
Communication methods	USB, optional WIFI and Bluetooth
Data storage	More than 1000 measurement data can be stored
Mechanical properties	
Machine size	158H×302W×132D(mm)
Weight	870g (including battery)
Environmental characteristics	
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

6. AB321A α, β Surface Contamination Monitor

Product Description

AB321A Alpha, Beta Surface Contamination Monitor is a cloud-based portable surface contamination monitoring device with a ZnS coated plastic scintillator probe with a sensitive detection area of 170cm2, designed to detect alpha and beta contamination on surfaces or wiped test samples. The instrument has a built-in WIF and 4G module for field data transmission. The color HD touchscreen display makes it easy to operate and carry. A cloud server can be set up so that measurement data can be automatically uploaded to the cloud server via wireless and mobile networks, allowing access to the server and data readings anywhere, anytime, as long as the instrument is connected to the internet.

Functional features

- Based on a unique detection method, the lower detection limit of the instrument is not affected by extern exposure.
- Built-in WIFI and 4G modules allow you to upload measurement data to the server for subsequent statistics analysis and display as required.
- Built-in industry standard (EJ/T1204) method with automatic evaluation and display of lower detection limits.
- Simultaneous a and measurements with switchable units of cps, Bq, Bq/cm2.
- Large HD touchscreen display with manual or automatic sensor to turn on the backlight.
- Alarm thresholds are set in two levels.
- Automatic deduction of the background function.
- A library of over 30 freely editable nuclides.
- Extendable with external probe for X/ γ dose rate measurements.

Technical specifications

Physical properties	
Detector type	ZnS coated thin film plastic scintillator detector with optional GM tube detector
Single probe incident window area	170cm²
Unit	cps, Bq, Bq/cm²
Background deductions	Deductive and non-deductive background optional, background measurement time settable
Detection efficiency	^{241}Am: ≥ 33%, ^{90}Sr/ ^{90}Y: ≥ 35%
Repeatability	< 10%
Relative inherent error	≤ ±25%
Measurement time	Timed measurement function, time 1s to 999s continuously adjustable
Alarm methods	Audible and visual alarm
Nuclide library	Over 30 nuclides with reset and automatic calibration
Data storage	More than 1000 measurement data can be stored
Electrical characteristics	
Power supply method	NiMH rechargeable battery, >25 hours continuous operation
Communication methods	USB, WiFi, 4G
Mechanical properties	
Machine size	139H×132W×354D(mm)
Weight	1.2kg (with battery)
Environmental characteristics	
Working environment	Temperature: -20°C to 50°C; Humidity: ≤ 90% (30°C, no condensing)

Radiation Detection

7. SCM Slit Surface Contamination Meter

Product Description

SCM Slit Surface Contamination Meter is designed and manufactured by SHUOBODA. The product is mainly used for surface contamination detection of items in nuclear power stations, nuclear medical, nuclear research and other nuclear energy facilities and plants, focusing on detecting the presence of radioactive contamination on items, walls, slits and human surfaces, and giving detection results and alarms for exceeding the threshold value. Staff can generally be equipped as required.

Functional features

- Equipped with a display unit and WiFi module, freely selectable according to the usage scenario
- Built-in WiFi module for data upload and logging analysis
- Metal construction, rugged body, EMC resistant
- Compact size for easy access to slits

Application areas

- Radiation protection of nuclear facilities, nuclear regulatory and "source-related" enterprises and institutions.
- Environmental monitoring department for official duties, disease control and health department for emergency response
- Security precautions for major events, embassies and consulates abroad.
- Customs, border control and other nuclear and radiological counter-terrorism, prevention of illegal radioactive material transport and radiological terrorist attacks, etc.

Radiation Detection

Technical specifications

Physical properties	
Detector type	ZnS coated, thin film plastic scintillator detectors
Detector area	15 cm²
Background count rate	α ≤ 0.05cps; β ≤ 3cps
Detection efficiency	α measurement efficiency (2π, ^{239}Pu): 40% (typical); β measurement efficiency (2π, ^{90}Sr-^{90}Y): 40%.
Lower limit of energy detection	≤ ±20 %
Measurement range	1cps ~ 10000cps
Relative inherent error	α < 25%; β < 25%
Repeatability	α < 20%; β < 20%
Alarm methods	Audible and visual alarm
Electrical characteristics	
Communication methods	USB
Mechanical properties	
Weight	≤ 500g
Probe protection	Probe protection
Environmental characteristics	
Protection class	IP55
Operating temperature	-25°C ~50°C
Operating humidity	≤ 90% (35°C)

Radiation Detection

8. HCM Portable Hand Contamination Monitor

Product Description

HCM Portable Hand Contamination Monitor is the latest development of SHUOBODA for hand surface contamination measurement monitor, its most important feature is simple operation, fast measurement, can be placed in the radioactive places or hanging in the entrance and exit channel, etc. easy to enter and exit personnel to detect whether they are contaminated.

Functional features

- Built-in sensor, automatic flip-up cover when measuring to avoid expansion of contaminated area.
- Simultaneous measurement with both hands for rapid scanning of hand contamination.
- Resistive touch screen operation with integrated data and graphical display of contamination in real time.
- Chinese and English operating interface, indicator lights indicate normal, alarm and fault status.
- Audio alarm and display alarm, continuously adjustable alarm threshold within the measurement range.
- The equipment can support wall-mounted and positional work scenarios.
- Optional features such as identification and personnel management.
- Open interface design for interfacing with higher level systems and interlocking control.

Application areas

- Nuclear power control area and nuclear facility building.
- Nuclear medicine, radiopharmaceuticals.
- Nuclear emergency response.
- Nuclear waste treatment plants.
- Nuclear-related areas.

Technical specifications

Physical properties	
Detector type	Large area plastic scintillator detector
Detection window area	Individual detection area ≥ 300cm²; total detection area ≥ 600cm² cps
Units of measurement	cps, Bq, Bq/cm²
Underlying deductions	Deductive and non-deductive background optional, background measurement time settable
Background count rate	α < 0.1cps, β < 20cps
Lower detection limit	α ≤ 0.02Bq/cm² β ≤ 0.2Bq/cm² (measurement time of 10s)
Measurement efficiency	^{241}Am: ≥ 25%，^{90}Sr/^{90}Y: ≥ 25%
Alarm methods	Audible and visual alarm
Electrical characteristics	
Power supply method	220V±10%, 50Hz±10%; built-in rechargeable lithium battery
Communication methods	RJ45, WiFi, 4G
Mechanical properties	
Machine size	373H x 578W x 117D(mm)
Weight	Approx. 25kg
Environmental characteristics	
Operating temperature	0°C to +40°C
Operating humidity	≤ 95% (30°C, no condensing)

9. G111 Portable Gamma Energy Spectrometer

Product Description

G111 Portable Gamma Energy Spectrometer is a multifunctional radioactive material detection equipment, combining nuclide dentification, energy spectrum analysis dose rate measurement, source location and other functions in one, optional high-performance 6Li(Eu) scintillation neutron detector, a machine to achieve simultaneous detection of neutrons and gamma rays, it has been widely used in environment protection, port, public security, underground, border guard and other industries.

Functional features

- 3.5" HD colour LCD touchscreen with two keys on the handle for one-handed operation
- Continuously adjustable alarm thresholds, audible and visual alarms
- Built-in automatic natural nuclide stabilization spectrum with automatic and manual nuclide identification
- Network port communication, dedicated software for remote monitoring and management in real time
- Complies with GB/T 18268.1-2010, ANSLN42.34 and other relevant standards.

Application areas

- Nuclear power plants
- Radiation source search
- Customs, terminal cargo inspection
- Reprocessing of radioactive material during decommissioning of nuclear facilities
- Radiation protection for nuclear regulatory and source-related" enterprises and institutions

Technical specifications

Physical properties	
Detector type	Gamma: 2" x "2NaI(Tl) scintillation detector. Optional: 1 "x1" or 1.5 "x1.5" LaBr$_3$ scintillation detector; GM tube detector; ^{6}LiI(Eu) neutron detector
Energy range	γ: 25keV ~ 3MeV; neutrons: 0.025ev ~ 15Mev
Energy resolution	NaI(Tl): 6.8%; LaBr$_3$: 3.5%
Dose rate range	10nSv/h to 100µSv/h, extendable to 100mSv/h
Sensitivity	>1400cps/(µSv/h), @ ^{137}Cs
Multi-channel analyzer	1024 channels
Electrical characteristics	
Power supply method	External power adapter with built-in rechargeable lithium-ion battery, automatically switchable, 8+ hours power supply time
Communication methods	USB, RJ45
Mechanical properties	
Machine size	132H×267W×198D(mm)
Weight	≤ 2.5kg (with battery)
Environmental characteristics	
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

10. G301 Gamma Rate Survey Meter

Product Description

G301 Gamma Rate Survey Meter is a portable, easy-to-use X and y dose ratemeter. It uses a Csl crystal as the main detector and has a built-in range extension GM tube for high sensitivity, wide range, easy data storage, long endurance and light weight and portability.

Functional features

- Lightweight and portable, unique search alarm function.
- Continuously adjustable alarm thresholds, audible and visual alarms.
- Multiple shortcut keys for higher usage requirements.
- HD black and white display with manually illuminated backlight.
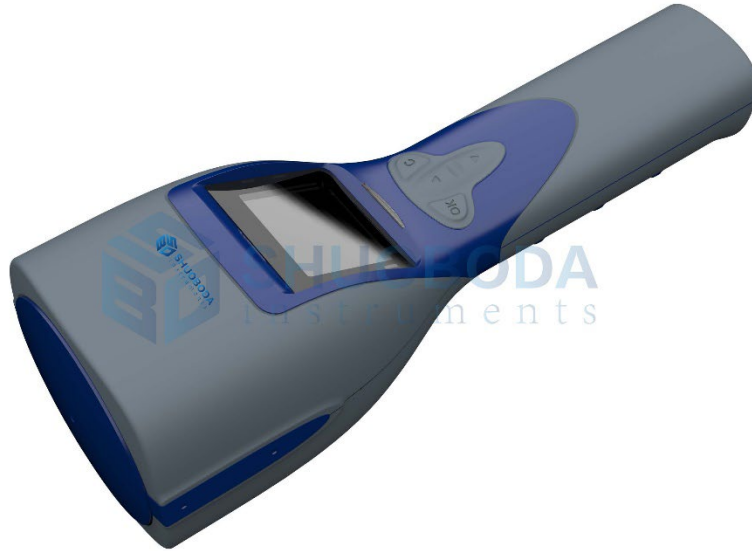- USB communication for easy data handling.

Application areas

- Radiation protection of nuclear facilities, nuclear regulatory and "source-related" enterprises and institutions.
- Environmental monitoring department for official duties, disease control and health department for emergency response.
- Security precautions for major events, embassies and consulates abroad
- Customs, border control and other nuclear and radiological counter-terrorism. prevention of illegal radioactive material transport and radiological terrorist attacks, etc.
- Third party testing agencies.

Radiation Detection

Technical specifications

Physical properties		
Detector type	CsI(Tl) Scintillation crystals	GM Tube
Energy range	33keV ~ 3MeV	50keV ~ 3MeV
Dose rate range	0.01μSv/h ~ 60μSv/h	50μSv/h ~ 100mSv/h
Sensitivity	>250cps/(μSv/h),@ [137]Cs	>0.1cps/(μSv/h),@ [137]Cs
Relative inherent error	≤ ±20 %	
Alarm methods	When the test data exceeds the set alarm threshold, the LED flashes and an alarm sounds	
Electrical characteristics		
Power supply method	4 x size 5 batteries, 100+ hours continuous operation (backlight not on, buzzer not sounding)	
Communication methods	USB	
Data storage	Storage for 120,000 data sets; Continuous saving: continuous data saving according to the set saving interval; Trigger save: storage starts when an alarm occurs, storage interval 1 second	
Mechanical properties		
Display method	HD B&W LCD	
Machine size	Φ90×267(mm)	
Weight	590g (without battery)	
Environmental characteristics		
Protection class	IP65	
Operating temperature	-20°C to 50°C	
Operating humidity	≤ 90% (30°C, no condensing)	

Radiation Detection

11.N301 Neutron Rate Survey Meter

Product Description

N301 Neutron Rate Survey Meter is a portable neutron survey meter that uses 6LiI(Eu) scintillation probe The device has a search and alarm function, and is light weight and portable, stores data conveniently and can export saved data using the accompanying application software.

Functional features

- 6LiI(Eu) scintillation crystal detector, high sensitivity.
- Continuously adjustable alarm thresholds, simultaneous audible and visual alarms, search alarm function.
- Shortcut keys for easy operation, free switchable display of count rate, dose rate and cumulative dose.
- Up to 100+ hours of battery life on 4 dry batteries.

Application areas

- Radiation protection of nuclear facilities, nuclear regulatory and "source-related" enterprises and institutions.
- Environmental monitoring department for official duties, disease control and health department for emergency response.
- Security precautions for major events, embassies and consulates abroad.
- Customs, border control and other nuclear and radiological counter-terrorism, prevention of illegal radioactive material transport and radiological terrorist attacks, etc.
- Third party testing agencies

Technical specifications

Physical properties	
Detector type	^{6}LiI(Eu) scintillation crystals
Energy range	0.025eV to 14MeV
Dose rate range	0.1μSv/h ~ 100mSv/h
Sensitivity	0.5cps/(μSv/h),@ ^{252}Cf
Relative inherent error	≤ ±20 %
Alarm methods	When the test data exceeds the set alarm threshold, the LED flashes and an alarm sounds
Electrical characteristics	
Power supply method	4 size 5 batteries, 100+ hours continuous operation (no backlight or buzzer)
Communication methods	USB
Data storage	Storage for 100,000 data sets; Continuous saving: continuous data saving according to the set saving interval; Trigger save: storage starts when an alarm occurs, storage interval 1 second
Mechanical properties	
Display method	HD black and white LCD with manually illuminated backlight
Machine size	Φ90×267(mm)
Weight	590g (without battery)
Environmental characteristics	
Protection class	IP65
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

12. NG301 Neutron and Gamma Rate Survey Meter
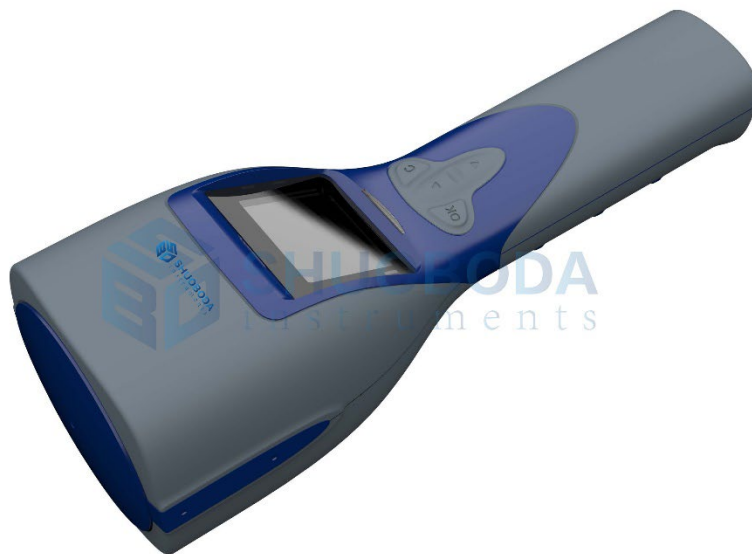
Product Description

NG301 Neutron and Gamma Rate Survey Meter is a new handheld radiation surve meter that detects both neutrons and gamma rays. The neutron detector is wrapped with unique spherical column-shaped slowing body, which features high neutron detection sensitivity good suppression of interfering gamma radiation fields, miniaturization, digitalization and intelligence. It can be used handheld or worn for neutron, x and gamma radiation level measurement and search, etc.

Functional features

- Free switching between count rate, dose rate and cumulative dose.
- HD black and white display with manually illuminated backlight.
- Independent gamma and neutron measurement channels and alarm alerts.
- Continuously adjustable alarm thresholds, audible, visual and iconic alarms at the same time.

Application areas

- Radiation protection of nuclear facilities, nuclear regulatory and "source-related" enterprises and institutions.
- Environmental monitoring department for official duties, disease control and health department for emergency response.
- Security precautions for major events, embassies and consulates abroad.
- Customs, border control and other nuclear and radiological counter-terrorism, prevention of illegal radioactive material transport and radiological terrorist attacks, etc.
- Third party testing agencies.

Technical specifications

Physical properties		
	Neutron	Gamma
Detector type	Neutron ^{6}LiI(Eu) scintillation crystals	CsI(Tl) scintillation crystals
Energy range	0.025eV to 14MeV	33KeV ~ 3MeV
Dose rate range	0.1μSv/h~100mSv/h	0.01μSv/h ~ 100μSv/h
Sensitivity	0.5cps/(μSv/h),@ ^{252}Cf	> 130cps/(μSv/h),@^{137}Cs
Relative inherent error	≤ ±20 %	
Alarm methods	When the test data exceeds the set alarm threshold, the LED flashes and an alarm sounds	
Data storage methods	Continuous saving: continuous data saving according to the set saving interval Trigger saving: storage starts when an alarm occurs, storage interval 1 second	
Electrical characteristics		
Power supply method	4 x size 5 batteries, 100+ hours continuous operation (no backlight or buzzer)	
Communication methods	USB	
Data storage	Storage for 100,000 data sets	
Mechanical properties		
Display method	HD B&W LCD	
Machine size	Φ90×267(mm)	
Weight	640g (without battery)	
Environmental characteristics		
Protection class	IP65	
Operating temperature	-20°C to 50°C	
Operating humidity	≤ 90% (30°C, no condensing)	

13.N302 Neutron Peripheral Dose Equivalent (Rate) Meter

Product Description

N302 Neutron Peripheral Dose Equivalent (Rate) Meter is a very light neutron dose equivalent (rate) instrument with a highly sensitive 6LiI(Eu) scintillation crystal as a neutron detector with a neutron high measurement sensitivity, good γ suppression, small size, light weight, intelligent, easy to operate and can be used remotely.

Functional features

- 6LiI(Eu) scintillator neutron detector, high sensitivity
- Simultaneous audible and visual alarms
- Continuously adjustable alarm thresholds with timed dose function
- 3.5" HD color LCD with simultaneous analogue and digital display
- Multiple communication interfaces for easy data management and remote access.

Application areas

- Detection of neutron dose equivalent rate) at nuclear power plants, nuclear power stations, research nuclear reactors accelerators and neutron source operations.
- Detection of radiation leakage from nuclear reactors and detection of neutron dose equivalent (rate) in emergency response to a radioactive material release.
- Environmental protection agency at all levels, CDC, borders, customs, etc. for official duties and anti-terrorist emergencies.
- Units using isotopic neutron sources, e.g., oil logging.
- Third party certification bodies.

Technical specifications

Physical properties	
Detector type	^{6}LiI(Eu) scintillation crystals
Dose rate range	0.1μSv/h ~ 100mSv/h
Neutron sensitivity	0.6cps/(μSv/h), @ ^{252}Cf
Relative inherent error	≤ ±20%
Measurement repeatability	≤ ±5%
Energy range	0.025eV - 16MeV
Angular response	≤ ±25%(0 - ±90° , @^{252}Cf)
Gamma suppression ratio	≥ 100:1(10mSv/h, @^{137}Cs)
Electrical characteristics	
Power supply method	Built-in rechargeable lithium-ion battery for 28 hours of continuous operation
Communication methods	USB, RJ45
Data storage	Built-in mass storage for extra-long data retention
Mechanical properties	
Machine size	300H x 175W x 248D(mm)
Weight	4.7kg
Environmental characteristics	
Protection class	IP66
Operating temperature	-20°C to 50°C
Operating humidity	≤ 90% (30°C, no condensing)

Radiation Detection

14.PDM Personal Radiation Dosimeter

Product Description

PDM Personal Radiation Dosimeter is designed and manufactured by SHUOBODA mainly used in nuclear medicine or related contact with radioactive work staff, when staff working with the dosimeters in the radioactive area, it can effectively monitor the radiation dose to the body quickly, in order to timely detection of radiation dose exceeded. It is an important guarantee for the safety of the lives of those exposed to radiation.

The PDM Personal Radiation Dosimeter APP displays measurement data wirelessly and in real time allowing users to view their radiation dose values and dose rate changes at any time, enabling active management of radiation levels, PDM Persona Radiation Dosimeter provides basic data for low-dose radiation health research and is an important component of the SHUOBODA intelligent radiation safety management platform.

Users can connect to PDM via Bluetooth to create a lifetime traceable health profile of their radiation dose, while the combination of the mobile terminal Global Positioning System (GPS) allows for accurate time, location and dose rate measurements.

Functional features

- Compact, lightweight and aesthetic appearance, the smallest personal dosimeter on the market at present.
- Highly sensitive detection performance at wearable size level with SiPM scintillation detectors.
- Detects weak changes in radiation from the natural environment and responds quickly to hazardous situations.
- Bluetooth wireless data transmission, with the possibility of checking individual radiation doses in real time and cumulative radiation doses via mobile app.
- Ultrasonic integrated body technology, IP67 protection class, waterproof and dustproof.

- Multiple alarm modes for audible, visual and mobile.
- Low power design with over 20 hours standby time.
- Fun exploration mode with GPS on mobile devices for accurate time, position and dose rate dose trinity measurement.

Technical specifications

Physical properties	
Detector type	Scintillation crystals +SiPM
Dose rate range	0.01µSv/h ~ 100mSv/h
Energy range	35keV~3MeV
Relative inherent error	≤ ±15 %
Alarm methods	Audible, visual, mobile
Electrical characteristics	
Supply time	Standby time >20 hours, cycle chargeable
Communication methods	Bluetooth
Data storage	Storage for 100,000 data sets
Mechanical properties	
Machine size	15H×77W×25D(mm)
Weight	50g (with battery)
Environmental characteristics	
Protection class	IP67
Operating temperature	-20°C to 50°C
Relative humidity	≤ 90% (30°C, no condensing)

15.PDMC Personal Radiation Dosimeter Management Cabinet

Product Description

PDMC Personal Radiation Dosimeter Management Cabinet is designed and manufactured by SIM-MAX. and is mainly used for the standardized and centralized management of multiple use of PDM Personal Radiation Dosimeters. Personal Radiation Dosimeter Management Cabinet features secure storage of equipment, intelligent charging of equipment intelligent one-to-one personnel binding of equipment, intelligent data transmission and analysis, and wireless network communication. It ensures standardized PDM management, secure device storage and comprehensive security of measurement data when multiple PDMs are used simultaneously. Personal Radiation Dosimeter Management Cabinet is an important part of the efficient, centralized and standardized personal dose monitoring management.

Functional features

- Dimensions: 90MM(W)*150MM(L)*180MM(H); Compact size, light weight, small volume, aesthetic appearance.
- Intelligent identification: The device supports a variety of user Intelligent identification functions such as IC/1Dcards, fingerprint recognition and QR codes for convenient operation.
- Intelligent management: One-to-one binding between user and Personal Radiation Dosimeter in the cabinet, enabling intelligent identification and management of the dosimeter.
- Data communication: Supports wired / wireless / 4G network technology to collect

radiation doses and upload them in time for intelligent analysis.

- Modularity: The device is equipped with one main control module + up to 5 storage modules, and the number of storage modules can be configured flexibly according to the amount of use.

Application areas

- Nuclear medicine, nuclear industry production companies.
- Personnel dose management in civil "source-related" enterprises and institutions.
- Customs and other regulatory applications.
- Metrology regulation in the environmental monitoring sector.
- Fire and emergency response rescue services.

Technical specifications

Main parameters	
Modular combination	Consists of a single master control module with several (up to 5 optional storage modules.
Storage capacity	A single storage module can hold up to 6 personal dosimeters.
Recognition function	IC/ID cards, fingerprint recognition, 2D codes, 1D codes
Manage binding functions	One-to-one management of users and personal dosimeters
Data communication functions	The data measured by Personal Radiation Dosimeter can be collected and uploaded to a monitoring system via data communication
Power supply method	AC 220V±10%, 50Hz±10%; Rechargeable lithium battery with a standby time of over 50 hours
Communication methods	WIFI, wired
Machine size	90MM(W)*150MM(L)*180MM(H)
Weight	500g

Radiation Detection

16.G2060 Mobile Area Gamma Radiation Monitor

Product Description

G2060 Mobile Area Gamma Radiation Monitor is a professional device for monitoring the dose rate levels in an area. The monitor displays the current dose rate in real time and is divided into three dose rate levels: low, medium and high according to set thresholds and applies green, yellow and red colors to display the current dose rate level in a more intuitive way. When there is an abnormal radiation in the area, it will promptly alert the staff in the monitoring area through the alarm system to take corresponding countermeasures and ensure the safety of personnel.

Functional features

- Easy installation: wall-mounted, hanging, bracket-mounted, fixed installation, etc., with plug-and-play detectors.
- Easy usage: large area, HD LED pixel screens. Continuously adjustable alarm thresholds with audible and visual alarms.
- Easy deployment: multiple monitoring points can be monitored wirelessly in a network. Local monitoring, cloud monitoring and APP monitoring information pushing.
- Long battery life: up to 168 hours in power-saving mode, external power supply possible Light weight and easy to carry: can be carried over the shoulder or in the hand, detector plug-in design for external use.

Application areas

- Nuclear power sites
- Nuclear medicine
- Containerinspection
- Radiation flaw detection

Radiation Detection

- Irradiation plants

Technical specifications

Physical properties			
Detector type	Energy compensated GM tubes	Highly sensitive GM tubes	Highly sensitive scintillation crystals (CsI)
Energy range	50keV ~ 3MeV	50keV ~ 3MeV	50keV ~ 3MeV
Measurement range	0.1μSv/h ~ 10Sv/h	0.1μSv/h ~ 10Sv/h	0.01μSv/h ~ 100μSv/h
Relative inherent error	≤ ±15%, @ ^{137}Cs		
Electrical characteristics			
Power supply method	Internal lithium-ion battery (DC 12V) or external AC 100V ~ 245V, 50Hz ±10%		
Duration	Over 24h continuous operation (screen on) or over 100h hours (power saving mode)		
Power	≤ 6W		
Communication methods	WIFI, 4G, RS232 interface		
Electromagnetic compatibility	CE compliant		
Mechanical properties			
Machine size	260H×352W×45D(mm)		
Display size	13"		
Weight	≤ 3.5kg (incl. probe)		
Environmental characteristics			
Operating temperature	-20°C to 50°C		
Relative humidity	≤ 90% (30°C, no condensing)		

17.PARM Area Radiation Monitoring System

Product Description

PARM Area Radiation Monitoring System is specially designed for the KRT system of nuclear power plants, the radiation environment monitoring stations of the Ministry of Environment and the frontline radiation environment monitoring stations of nuclear power Plants, etc.

It is used to monitor X and γ radiation in the surrounding environment. in the event of radiation abnormalities, the monitoring system issues an alarm to alert staff in the adiation zone to take appropriate countermeasures in a timely manner to ensure the safety of personnel.

Functional features

- Automatic range switching with dual GM tube detectors.
- Energy compensated.
- Continuously adjustable secondary alarm thresholds, audible and visual alarms.
- Alarm data at all levels stored in non-volatile memory.
- High immunity to electromagnetic interference.
- Multi-point deployment and remote operation to form a regional radiological monitoring network.

Application areas

- Nuclear power sites.
- Nuclear medicine
- Container inspection
- Radiation flaw detection
- Irradiation plants

Technical specifications

G202 Energy compensated GM tube detector	
Probes	Double GM tube
Detection of rays	X, gamma rays
Measurement range	0.01µSv/h ~ 10Sv/h
Energy response	50keV ~ 3MeV
Relative inherent error	≤ ±15% (137Cs, 661keV)
Operating environment	Temperature: -25° C ~ 60° C; Humidity: ≤ 95%/35° C
Area radiation monitoring systems	
Power switch	Two-grade key switch
Screen display	Touchscreen
Indications / Alarms	Single multi-coloured alarm light (green, yellow, red), one buzzer
Power supply	AC 220V, 50Hz
Communication	Communication with the detector: RS485; Communication with the platform: RJ45 network interface; Data export :USB interface
Mounting method	In-situ wall mounting

Radiation Detection

Environmental and Plant Radiation Monitoring System

1. Radiation Protection Safety Boundary Monitoring System

Radiation Protection Safety Boundary Monitoring System for Industrial X /γ Ray Flaw Detection
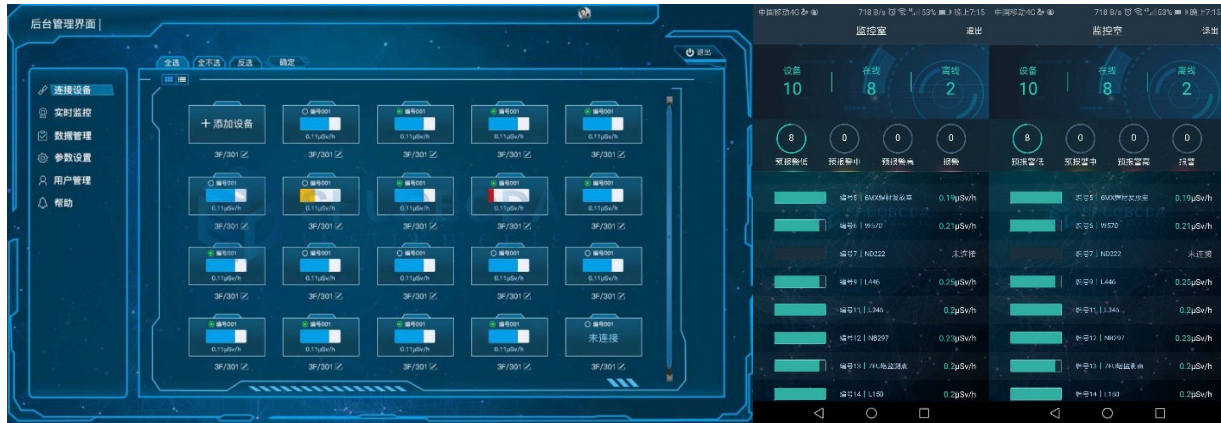
Product Description

The system mainly obtains the radiation level and operating condition data through various detectors or monitoring equipment, which are reasonably arranged in the boundary area of the site, and transmits data to the management platform and mobile phone management app through the site network, showing the site condition to the user visually through the conversion of the platform, and can effectively alert the relevant personnel in time when the situation occurs, helping to identify problems and take measures in time.

Functional features

- Real-time: the platform is synchronized with the on-site equipment to ensure timely alarms and timely action by the relevant personnel on site to ensure construction safety.
- Advanced: advanced instrument performance indicators, multiple communication methods working simultaneously cloud server and mobile app to understand the field.
- Timeliness: audible and visual alarms of platform and audible and visual and vibration alerts of mobile phone for tamely alarm information.
- Reliability: the performance of the instrument has been certified by a third party to ensure the authenticity, validity and reliability of the measured data.

G2060 Radiation Monitoring Platform

Collects real-time monitoring data from on-site equipment for analysis and provides timely feedback on the status of the on-site radiation environment. Alarm to alert monitoring staff in the event of a situation.

G2060 Radiation Monitoring app

Displays rea time data of the equipment on site, easy to view and can notify relevant personnel on site in time to work with the platform.

Equipped computers

Engineering use specialized, for installing and running platform software. Platform system with long-term stable operation.

Equipped servers

This server is used to store historical and alarm data collected by the platform and is responsible for data interfacing with other external systems

Application areas
- Nuclear power sites
- Nuclear power plants
- Nuclear Fuel Production Plant
- Nuclear Waste Treatment Plant
- Nuclear medicine
- Containerinspection
- Radiation flaw detection-Irradiation plants

Multi-point deployment for wireless network monitoring

Remote operation using wireless communication to form a regional radiological monitoring network.

Radiation Detection

2. G330 Area Radiation Monitoring Systems

Product Description

G330 Area Radiation Monitoring Systems is used for real-time online monitoring for radiation sites net worked and digital monitoring and management. Wide range of applications for nuclear power, nuclear industry environmental protection, sanitation, metallurgy and other radiation sites.

The system consists of one or more subsystems and a radiation monitoring system platform, each consisting of a single or multiple detectors (measuring points) and an in-situ processing display unit, available in point-to-point and one-to-many modes. Each measurement point converts the detected radiation signal into a digital signal, which is received by the in-situ processing display unit via an RS485 interface and displays the current dose rate, while uploading the data to the radiation monitoring system platform.
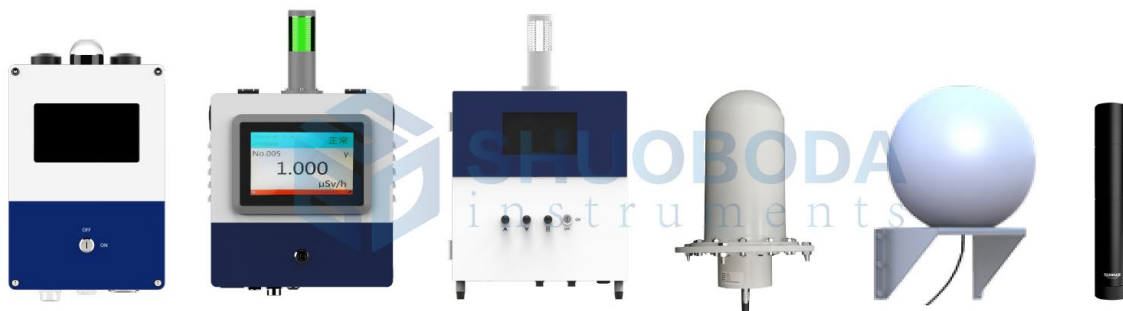
Functional features

- A wide range of in-situ display units and detectors are available to meet different usage requirements
- In-situ processing display units and detectors can be freely combined to meet diverse needs such as point-to-point or one-to many.
- Modular design, flexible networking by wired or wireless means- Multiple detector alarm thresholds can be set independently, with audible and visual alarms for exceeding the thresholds
- Enables simultaneous regional neutron and gamma ray monitoring.
- Distance between LPDU and detector up to 800 m
- Remote query and modification of the operating parameters of each monitor.
- With historical data query and report generation function
- The radiation monitoring system displays real-time monitoring data and alarm status information for each monitoring point simultaneously.

Application areas

- Nuclear power plant auxiliary plant, fuel plant, reactor plant, waste liquid storage plant, etc.
- Nuclear fuel production, nuclear waste disposal and other related units.
- Places where radiopharmaceuticals are produced, developed, stored, transported, injected, etc.

- Radioactive installations, accelerator sites, the three-waste storage, etc.
- Storage of radioactive sources, analysis of radiation samples, irradiation processing, etc.

Technical specifications

In-situ processing display unit			
Instrument model	PRAM	PRAM-A	PRAM-B
Human-machine interaction	Touch, Linux system	Touch	Push button
Alarm function	Two-level alarm and fault alarm	Three-level alarm and fault alarm	Two-level alarm and fault alarm
Alarm method	audible and visual alarms	audible and visual alarms	audible and visual alarms
Detector extension	5 detectors can be connected simultaneously, Supports hot-swappable, automatic detector recognition		
Linkage control	With relay port, support linkage control		
Electrical characteristics			
Power supply method	AC 220V, 50Hz; battery backup available	AC 220V, 50Hz	AC 220V, 50Hz
Communication method	Communication with detectors: RS485; Communication with the platform: RJ45 network interface; Data export: USB interface, optional wireless communication	Communication with detectors: RS485; Communication with the platform: RJ45 network interface;	Communication with detectors: RS485; Communication with the platform: RJ45 network interface;
Data storage	4GB for more than 6 months of data storage	128G capacity all-in-one	Storage for more than 6 months of data
Mechanical properties			
Display size	7" capacitive screen	8.4" resistive screen	7" LCD screen
Machine size	382H×230W×134D(mm)	532Hx348Wx161D(mm)	600Hx368Wx148D(mm)
Weight	Approx. 10kg	Approx. 10kg	Approx. 13kg

Environmental characteristics	
Protection class	IP65
Operating temperature	-20°C ~ + 85°C
Operating humidity	< 95% (no condensing)

Detector					
Types of detection rays	X, γ			Neutron	
Model	G201	G202	G203	NG204	NG205
Detector type	Energy compensated GM tubes	Highly sensitive energy compensated GM tube	Ionisation chamber	^{3}He	^{3}He
Energy range	50keV ~ 3MeV	50keV ~ 3MeV	40keV ~ 7MeV	0.025eV to 15MeV	0.025eV to 15MeV
Measurement range	0.1μSv/h ~ 10Sv/h	0.01μSv/h ~ 10Sv/h	1μSv/h ~ 100Sv/h	0.01μSv/h ~ 10mSv/h	0.01μSv/h ~ 10mSv/h
Relative inherent error	≤ ±15%, @^{137}Cs			≤ ±30%, @^{252}Cf	
Response time	≤ 5s				
Interface to the mainframe	with integrated power and data cable				
Transmission distance	100 m as standard				
Installation method	Wall-mounted, suspended, bracket-mounted, fixed, etc., plug-and-play				
Communication method	RS485				
Protection class	IP65				

3. G332 Ambient Gamma Radiation Dose Rate Continuous Monitoring System

Product Description

G332 Ambient Gamma Radiation Dose Rate Continuous Monitoring System is an integrated device consisting of a high and low range double GM tube detector, a local processing display unit and a remote monitoring system, mainly suitable for continuous online monitoring of environmental gamma radiation dose rates in environmental protection and nuclear power stations. Multiple G3320s can form an environmental radioactivity monitoring network, enabling multi-point deployment and remote operation. t can be widely used in nuclear power stations and environmental monitoring stations of the Ministry of Environmental Protection.

Functional features

- High and low range GM tube detectors with automatic range switching
- High sensitivity, energy compensated
- Ergonomic design with 7" touchscreen, easy to operate
- High immunity to electromagnetic interference.
- Multi-point deployment and remote operation to form an environmental radiological monitoring network.

Application areas

- Radiation environmental monitoring station of Ministry of Environmental Protection.
- Supervisory environmental monitoring system for nuclear facility perimeters.
- Emergency monitoring system for nuclear and radiation accidents.

Technical specifications

Physical properties	
Types of detection ray	X, γ
Detector type	Highly sensitive energy compensated GM tubes
Energy range	50keV ~ 3MeV
Measurement range	0.01μSv/h ~ 10Sv/h
Response time	≤ 5s
Relative inherent error	≤ ±15%, @^{137}Cs
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Communication methods	RS485, RJ45 network interface
Environmental characteristics	
Protection class	IP65
Operating temperature	-25°C to 50°C
Operating humidity	≤ 95%

Radiation Detection

4. FS-100 Portable Iodine / Aerosol Sampler

Product Description

FS-100 Portable Iodine / Aerosol Sampler is a sampling device for the collection of airborne radioactive aerosols or iodine. The instrument mainly consists of a second stage brushless centrifugal fan, built-in flow sensor, flow control unit and display control unit, etc. it is equipped with continuous sampling, timed sampling, quantitative sampling and other functions for rapid sampling.

Functional features

- Simultaneous sampling of aerosols or iodine in gases.
- Small size, light weight, multiple mounting options
- Visual display of flow rate, manually programmable and operable
- Color LCD touchscreen display for visualization of instantaneous and cumulative flow figures
- Multiple sampling methods: continuous, timed, quantitative.
- RJ45 communication

Application areas

- Sampling of gases in temporary areas or at construction sites
- Sampling of gases in the process plant
- Sampling of gases in the ambient atmosphere
- Chimney exhaust gas sampling
- Exhaust air duct gas sampling

Technical specifications

Physical properties	
Motors	Second stage brushless centrifugal fans
Sampling objects	Aerosols, iodine
Sampling media	Filter paper, iodine cartridge
Flow range	Aerosols: 0 to 12m3/h, Iodine: 0 to 6m³/h
Filtration efficiency	≥ 95%
Flow accuracy	≤ 5%
Show content	Sampling time, instantaneous flow, cumulative flow
Unit	Cubic meters per hour, liters per minute, cubic meters or liters, hours or minutes
Mean time to failure	≥ 10000 hours
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Communication methods	RJ45
Mechanical properties	
Display method	Resettable zero, LCD display
Machine size	293H x 285W x 383D(mm)
Weight	Approx. 13kg
Environmental characteristics	
Operating temperature	-30°C to 50°C
Operating humidity	≤ 95%

5. Tri100 Low Temperature Atmospheric Tritium Sampler

Product Description

Tri100 Low Temperature Atmospheric Tritium Sampler uses the basic principle of the drying/adsorbent method to collect atmospheric HTO through a four stage tandem collection bottle equipped with molecular sieves, allowing for the sampling of tritium in the ambient atmosphere, exhaust ducts and chimneys. It is particularly suitable for low temperature environments such as northern arid regions or winter sampling, and is one of the important pretreatment devices for liquid scintillation spectrometers.

Functional features

- Continuous sampling of tritium in air over a long period of time.
- Four stage tandem collection bottle with high HTO collection rate.
- Visual readability of instantaneous flow, cumulative flow and run time.
- Easy access to collection bottles for easy handling of samples.
- Integrated rain gauge with automatic shutdown protection in rainy weather and automatic switch-on operation in sunny weather
- Integrated programmable design, humidity abnormalities and fault triggered alarms
- Technical specifications

Radiation Detection

Technical specifications

Physical properties	
Sampling objects	HTO
Sampling media	1.5 to 2.0kg of molecular sieve
Sampling time	0~999h continuously configurable for long term continuous operation
Sampling mode	Timed sampling, quantitative sampling, manual sampling
Flow range	0 to 10L/min adjustable
Capture efficiency	97% (3L/min)
Electrical characteristics	
Power supply method	AC 220V±10%, 50Hz±10%
Power	30W
Communication methods	RS232
Mechanical properties	
Display method	Digital tube
Machine size	260H×450W×280D(mm)
Weight	16.6kg
Environmental characteristics	
Operating temperature	-20°C to 50°C
Operating humidity	<80%

Application areas

- Environmental background monitoring at radiation monitoring stations
- Process piping for nuclear facilities
- Environmental monitoring outside nuclear power plants
- Reactor plant
- Tritium waste disposal

6. Environmental Radiation Monitoring Systems for Nuclear Power Plants (KRS systems)

Product Description

Environmental Radiation Monitoring Systems for Nuclear Power Plants (KRS systems) is a system for monitoring radiation levels and meteorological data in and around the nuclear power plant. The entire KRS structure consists of a KRS centra station, an environmental gamma radiation monitoring station, a meteorological station and an environmental monitoring vehicle.

The KRS system can record data on the meteorological environment and gamma radiation in the entire plant area, and can generate various graphs, curves and reports based on the recorded data to evaluate the impact of radioactive substances released or leaked from the nuclear power plant on the surrounding environment during normal operation and in the event of an accident, and to safe guard the health and safety of the public and plant staff in the vicinity of the nuclear power plant.

KRS Central Station

Web Servers

It is used for the transmission and processing of real-time data with each monitoring sub-station. It consists of an environmental γ radiation data acquisition workstation, a meteorological data acquisition workstation, a meteorological and γ data graphics workstation, a switchboard, network communication equipment and internet equipment, and a power supply system.

Monitoring Platforms
- Dynamic energy spectrum capability
- Enables real-time monitoring and remote management
- Real-time monitoring of sub-station locations, ambient gamma dose rates, meteorological data and equipment status.
- Access to historical archives of measurement data, intelligent output of various data reports and image curves.

Web Servers

Monitoring Platforms
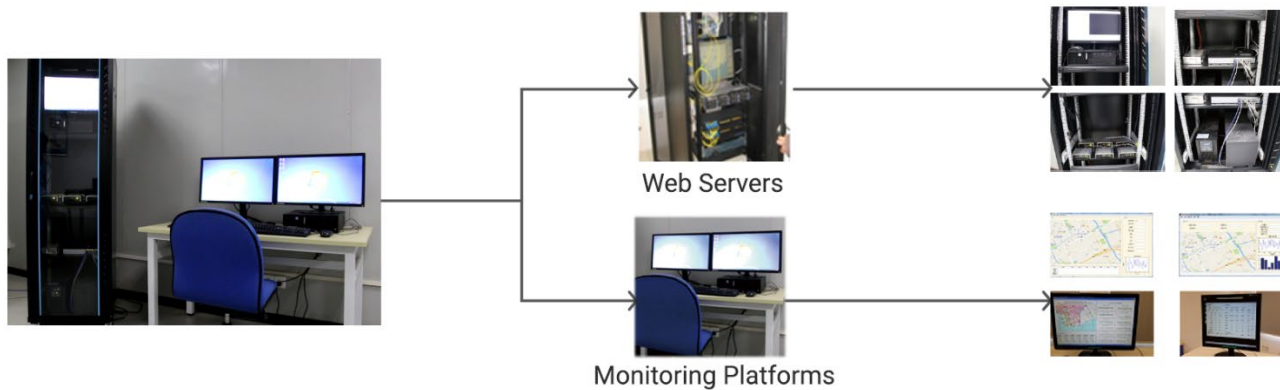
Environmental γ Radiation Monitoring Station

Each monitoring sub-station is equipped with G331environmental γ continuous monitoring system atmospheric aerosol sampling equipment, automatic meteorological collection equipment, power management and sub-station control centre data transmission equipment, other infrastructure, etc., for continuous real-time monitoring of radiation levels and trends in the environment around the nuclear power plant.

G331Environmental Gamma Continuous Monitoring System Consists of a gamma detector, multi-channel analysis system, main control unit, power supply system, etc.

Atmospheric Aerosol Sampling Equipment
Consists of a sampler, gas flow meter, pumping equipment, etc.

Data Transmission Device
The data communication method is based on wired communication. supplemented by wireless communication.
The wired transmission channel uses a network that supports TCP/P and the wireless transmission channel uses a DTU wireless network.

Meteorological Stations

Consists of air pressure sensor, temperature and humidity sensor rainfall collector and wind speed and direction meter which are used to continuously record parameters such as air pressure, temperature and humidity, rainfall, wind speed and direction at this monitoring station respectively.

Radiation Detection

Environmental Monitoring Vehicles

Environmental Monitoring Vehicles are generally equipped with vehicle-mounted radiation monitoring systems. a series of portable radiation monitoring instruments, etc.

Environmental monitoring vehicles

Portable multifunctional liquid scintillation spectrometer

Low temperature atmospheric tritium sampler

Portable Iodine / aerosol sampler

Environmental gamma spectroscopy continuou monitoring system

Portable gamma energy spectrometer

Environmental x, γ dose equivalent (rate) meters

α, β surface contamination meter

Application areas

- Nuclear power stations.
- Environmental monitoring stations.

Radiation Detection

Explosives / Drugs / Toxic Gas Detection Series

1. Portable Explosives / Narcotics Trace Detectors

Product Description

Portable Explosives / Narcotics Trace Detectors is a trace explosives/drugs detection device based on the IMS detection principle, designed and manufactured by SHUOBODA with the function of fast and accurate detection of trace explosives/drugs. The product performance reaches the international advanced level of similar products, with the advantages of easy to use, low cost of consumables and easy maintenance.

The product has been awarded a number of national invention patents, and has obtained a qualified test report from the National Security Alarm System Product Quality Supervision and inspection Centre, and fully complies with the public security industry standard of the Ministry of Public Security, and has been widely used in airports, railway stations, customs, border control, public security, national defense, anti-smuggling, firefighting and military departments.

Functional features

- High sensitivity for the detection of ng to pg explosives / narcotics
- Fast analysis,2~10 seconds for explosives/ narcotics detection
- Three levels of sensitivity selectable with hot start and standby functions
- External high efficiency sampler with wide sampling area and high efficiency
- Highly adaptable to the environment and can be used normally in highland areas
- Colour LCD touchscreen with rich interface prompts, easy to learn and use

Application areas

- Transport sector security checks: airports, railway stations, bus stations, underground stations, motor way check points, ports, etc.
- Contraband detection: prisons, guardhouses, customs, border guards, courts, post offices, courier companies, etc.
- Security for large events, important people, buildings
- Enforcement: enforcement for Public Security Bureau, forensics for Judicial Bureau
- Counter-terrorism for fire and Special Police Brigade and emergency response to emergencies, etc.

Technical specifications

Use of technology	Ion Mobility Spectrometry (IMS)
Types of hazardous materials that can be detected	Explosives: TNT, DNT, RDX, PETN, NG, BP, TETRYL, HMX, AN, etc., with the ability to add new samples as required.
	Narcotics: Cocaine (COC), Heroin (HER), Methamphetamine (MET), Ecstasy (MDMA), Ketamine (KET), Morphine (MOP), Legerdemain (LSD), Dulcolax, Ephedrine, etc., with the ability to add new samples as required
Sensitivity	ng to pg level (three levels available)
Analysis time	2 to 10 seconds
Warm-up time	≤ 10 minutes
Sampling method	Direct wipe sampling or non-contact aspiration sampling
Alarm forms	Audible and visual alarms, or select a covert alarm that does not cause panic
Power supply method	AC 110/220V, 50/60HZ; DC 22.2V
Battery parameters	2 x 22.2V Li-Ion rechargeable batteries
Communication methods	RJ45, USB, WIFI
Data storage	At least 240,000 raw data sets
Display method	Colour LCD Touchscreen
Working environment	Operating temperature: -20°C to 60°C; Operating humidity: ≤ 95%

Radiation Detection

2. Portable Explosives Narcotics Trace Detectors
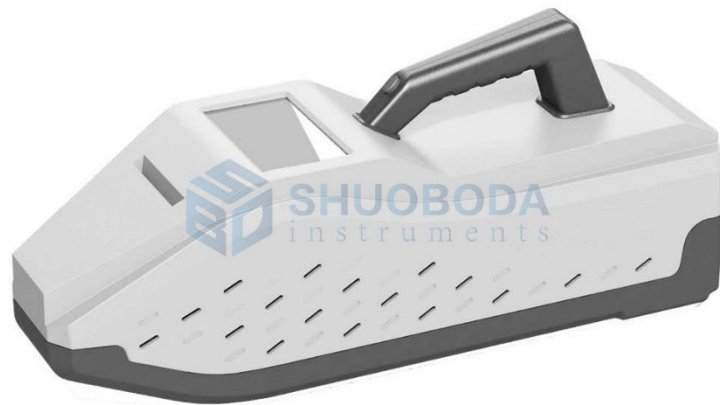
Product Description

Portable Explosives Narcotics Trace Detectors is the latest addition to the range of trace explosives and narcotics detection devices based on IMS technology. It also has an integrated nuclear radiation measurement module, making it easy to detect explosives narcotics and nuclear radiation simultaneously in real time in security screening situations ensuring the safety of the environment and staff and improving security screening efficiency

Functional features

- Simultaneous detection and analysis of explosives and drugs based on ion mobility spectrometry.
- High sensitivity and fast analysis, results in 2 to 10 seconds.
- External high efficiency sampler with wide sampling area and high efficiency.
- Optional nuclear radiation detection module to improve security screening efficiency.

Application areas

- Transport sector security checks: airports, railway stations, bus stations, underground stations, motorway check points, ports, etc.
- Contraband detection: prisons, guardhouses, customs, border guards, courts, post offices, courier companies, etc.
- Security for large events, important people, buildings.
- Enforcement: enforcement for Public Security Bureau, forensics for Judicial Bureau.
- Counter-terrorism for fire and Special Police Brigade and emergency response to emergencies, etc.

Radiation Detection

Technical specifications

Use of technology	Ion Mobility Spectrometry (IMS)
Types of hazardous materials that can be detected	Explosives: TNT, DNT, RDX, PETN, NG, BP, Tetryl, Semtex, AN, etc., with the ability to add new explosives as required.
	Narcotics: Cocaine (COC), Heroin (HER), Methamphetamine (MET), Ecstasy (MDMA), Ketamine (KET) Drugs such as morphine (MOP), dulcolax (DOL), ecstasy (LSD) and easy-to-make drugs, with the ability to add new samples as and when required
Working mode	Explosives and narcotics simultaneous detection mode
Sensitivity	ng~ pg class
Analysis time	2 to 10 seconds
Warm-up time	≤ 10 minutes
Sampling method	Direct wipe sampling or non-contact aspiration sampling
Alarm forms	Audible and visual and character alarms, or select a covert alarm that does not cause panic, indicating the type of explosives and drugs
Calibration method	Automatic internal calibration or manual calibration
Display method	LCD touchscreen with multiple language switching
Power supply method	AC 110/220V，50/60HZ；DC 22.2V
Battery parameters	Two 22.2V Li-Ion rechargeable batteries
Communication methods	USB, WiFi, RJ45
Machine size	150H×440W×140D(mm)

3. Portable Military Toxicants Detector / Chemical Warfare Agents (CWAs) Detector

Product Description

Portable Military Toxicants Detector / Chemical Warfare Agents (CWAs) Detector is a special device designed and manufactured by shuoboda based on IMS technology for the detection of trace military toxic agents and industrial toxic gases. It has the function of online fast and accurate detection of trace military toxic agents and industrial toxic gases, with stable performance, easy to use, low cost of consumables and easy maintenance etc.

The product is designed to lock the presence and type of military toxic agents and industrial toxic gases by aspiration sampling and analysis of the atmosphere in crowded places and qualitative alarm of the instrument. With the increasingly severe domestic and international anti-terrorism situation be facing, it has become an indispensable product for military antiterrorism and crowd gathering places safety monitoring.

Functional features

- High sensitivity to distinguish between military toxic agents / chemical gas types
- Fast analysis, only 2 to 10 seconds to detect
- Colour LCD touchscreen, intuitive and easy to use interface
- Easy maintenance of the equipment, no regular maintenance required

Application areas

- Transport sector security checks: airports, railway stations, bus stations, underground stations, motorway checkpoints, ports, etc.
- Military and police counter-terrorism: chemical warfare agents (military toxic agents) field testing.
- Security for large events, important people, buildings.
- Counter-terrorism of Fire and Special Police Brigade and emergency response to emergencies.
- Environmental monitoring: on-site source emission monitoring.

Technical specifications

Use of technology	Ion Mobility Spectrometry (IMS)
Types of tests available	Sarin (GB), Soman (GD), Viox (VX), mustard gas (HD), formaldehyde and other toxic and hazardous gases with the ability to add new samples as needed
Sensitivity	0.1mg/m³ (sarin)
Analysis time	2 to 10 seconds
Warm-up time	≤ 10 minutes
Sampling method	Inhalation sampling
Alarm methods	Audible and visual alarms
Power supply method	AC 110/220V, 50/60HZ; DC 22.2V
Battery parameters	22.2V Li-ion rechargeable battery
Communication methods	RS232, USB
Data storage	2G SD card
Display method	Color LCD touchscreen with Chinese and graphic interface
Machine size	161H x 372W x 122D(mm)
Operating environment	Operating temperature: -10°C to 55°C; Operating humidity: ≤ 95%

4. Stationary Toxic Gas Monitors

Product Description

The Stationary Toxic Gas Monitors is the latest ion mobility spectrometry (IMS) technology based stationary toxic gas monitor launched by shuoboda, which can quickly, accurately and sensitively detect a kinds of military toxic gases, integrating a variety of electro chemical sensors to extend the detection range to a variety of industrial toxic and hazardous gases, greatly satisfying the security, online monitoring and early warning of important building sites and densely populated areas.

Functional features

- Wide range of optional detectors.
- 24(h)x7 online continuous real-time analysis for long periods of time.
- Early warning, hazard assessment.
- Low-failure, low-maintenance operation.
- Self-calibrating instrument, highly adaptable to the environment.
- High degree of protection, can work in outdoor environments.
- Individual or networked operation, various data communication modes available.

Application areas

- Underground
- Power plants
- Government
- Museum
- Airport
- Financial Centre
- Conference Centre
- Medical Centre
- Thermal power stations

- Waterworks
- Substation

Technical specifications

Physical properties	
Use of technology	Ion Mobility Spectrometry (IMS)
Types of hazardous materials that can be detected	Military agents: Sarin (GB), Soman (GD), Viox (VX), Mustard gas (HD), Hydrocyanic acid (AC) Toxic and hazardous gases: SO_2, H_2S, NH_3, PH_3, etc.; can be extended according to customer requirements
Sensitivity	ppm to ppb levels
Alarm forms	Audible, visual or covert alarms
Electrical characteristics	
Power supply method	AC 220V, built-in emergency battery backup
Communication methods	RJ45, WIFI, 4G, etc.
Mechanical properties	
Display method	Multiple indicators to show the instrument's operating, maintenance, fault and alarm status
Machine size	480H×420W×130D(mm)
Environmental characteristics	
Operating temperature	-10°C to 60°C
Operating humidity	≤ 95%

Radiation Detection

5. NBC Detection Systems

Product Description

The NBC Detection System is a total solution designed for the online monitoring of radioactive materials and toxic and hazardous threats. The system consists of several independent detection devices, wireless transmission, data integration system, PAD and other modules, which can quickly and effectively complete real-time monitoring, data collection and instant analysis of various NBC threats in case of emergencies, NBC terrorist attacks, environmental monitoring, etc. The system alerts in real time when abnormalities are detected, providing timely and effective data for detection and monitoring and emergency response.
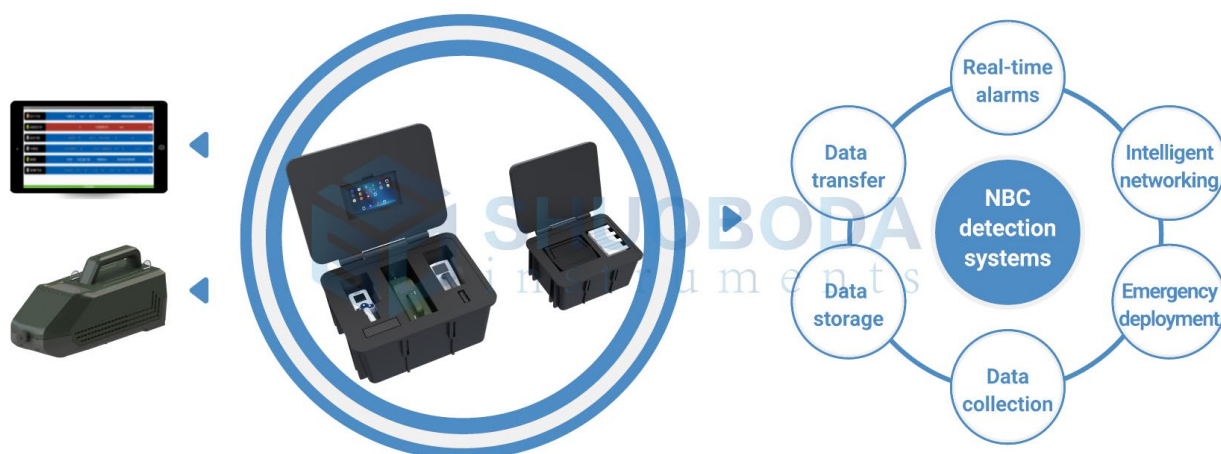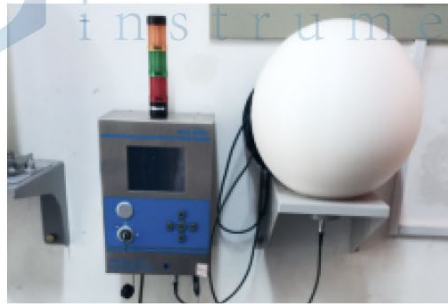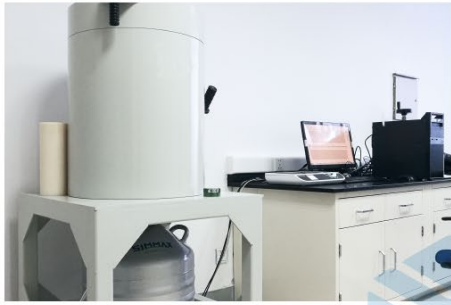

Functional features

- Multifunctional radiation detection: integrated measurement of alpha, beta, gamma and n radiation levels.
- Nuclide identification: nuclide identification, energy spectrum analysis, dose rate measurement, source finding and localization.
- Surface contamination: measurement of surface alpha, beta and alpha + beta contamination.
- Personal protection: monitoring of radiation dose values to individuals.
- Toxic gas monitoring: Sarin GB), Soman (GD), Viox (VX), mustard gas (HD) and other military and industrial toxic and hazardous gases.
- Expandable equipment according to user requirements, open data protocols available

Application areas

- Nuclear biological and chemical protection
- Radioactive contamination site detection
- Detection of suspicious objects in cordoned off areas
- Scene of chemical gas detection
- Early warning monitoring of crowded areas such as subways, airports and train stations.
- Nuclear, biological and chemical emergency response for environmental monitoring, homeland security.
- Emergency response for fire, special police, major events and emergencies.
- Customs, ports, borders and other counter-terrorism emergencies

Radiation Detection

Partial application cases