Innovator In Spectroscopy Equipment

Counters, Dosimeters and Spectrometers

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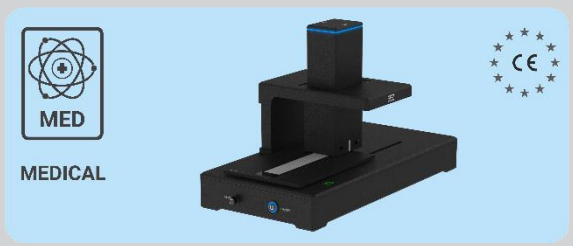
Radiation Measurement and detection Systems



Document

The Necessity of Radiation Protection

Radioactivity is a natural phenomenon and there are natural sources of radiation in the environment.

If we know the radiation and the way of protection against it, we can use many beneficial applications, ranging from power generation to uses in medicine, industry and agriculture without any concern.

Also, if we have appropriate equipment and instruments to measure and detect it, we will not be surprised by unexpected events.

The preparation of exact and appropriate instruments can help to monitor, detect, control and manage the event before occurrence and better exposing with less damage.

The radiation risks to workers and the public and to the environment that can be lowered in case of intentional or unintentional incidents and accidents, as well as nuclear disaster and probable nuclear attack if we are ready for them.

Radiation risks may transcend national borders from one country to another. So, international cooperation serves to promote and enhance safety globally by improving capabilities to control hazards, to prevent accidents, to respond to emergencies and to mitigate any harmful consequences.

Activities such as the medical uses of radiation, the operation of nuclear installations, the production, transport and use of radioactive material, and the management of radioactive waste must therefore be performed by considering the radiation protection criteria.

International Atomic Energy agency (IAEA) recommended criteria and standards for radiation measurement (dose and spectrum of alpha, beta, gamma) with the aim of safety. All of these measurements should be performed using correct selection of radiation measurement systems.

So, only radiation measurement and detection instruments can be used to ensure the radiation safety and security.

It is obvious that various environment with kind of radiation and different levels as well as the type of area (controlled or uncontrolled) can use various equipment to have better monitoring and controlling the radiation.

Some fields that needed radiation protection

- *Public*
  - Radiation should be monitored in the whole country (soil, water, air) to measure any abnormality in radiation level of the environment.
  - Protecting the public health.
  - Identify the contaminated radioisotope for further actions.
- *Safety and security*
  - Controlling the trafficking of illicit radioactive material in the country and also in the entrance and exit.
  - Controlling the border for trafficking of pedestrian, vehicle, car and also container of materials (in airports, seaport, railways)
  - Monitoring and controlling the radioactivity levels in strategic centers.
  - Controlling the entrance and exit of important and strategic centers for avoiding entering the nuclear sources.
  - Detecting and identifying the level of radioactivity danger in any occurred accident to control and manage it.

- Protecting the important people by controlling food, water, as well as the residence and accommodation.
- Identify the contaminated radioisotope for further actions.

- *Medical centers*
  - Measuring the dose of radiopharmaceutical.
  - Monitoring the radioactivity of the environment.
  - Radiation protection of patients and medical group.
  - Identify the radiopharmaceutical properties for the needed actions.
- *Factory using radioactive sources for any measurement*
  - Measuring the dose of environment.
  - Monitoring the radioactivity of the environment.
  - Radiation protection of public and workers.
  - Identify the spectrum of radioisotopes for the needed actions.
- *Research and educational centers*
  - Monitoring and measurement of radioactivity during using the nuclear sources for the health of workers, as well as safety of the environment for non-radiation workers.
  - Controlling the dose and level of activity in the controlled or uncontrolled area.
  - Identify the radioisotopes based on the spectroscopy for the needed actions.

Radiation measurement and detection equipment

In all required measurement systems, due to the importance of measuring the type of radiation (alpha-beta-gamma), the energy range (from radiation background up to the considered energies), the range of dose and dose rate, the need for radiation detection, identification, measurement and the ability to record needed information (energy and spectrum) should be provided.

According to the experiences of the company and the manufactured products, all the systems stated in different categories, in individual or in module, in the form of remote control or close management, in a fixed or portable and based on different standards set by the user, can be built and even personalized.

CFP company has various products in this field, including alpha, beta and gamma dosimeters, as well as gamma spectrometers in individual and modular as described below.

Some of our products are:

- Dosimeter (PD2318-PD2319)
  - Individual
  - Environment
- Gamma spectrometer (Spect2113-Analysis)
- Radiation Portal Monitoring (RPM2220-RPM2210)
  - Personnel/Car/Vehicle Radiation Portal Monitoring
- Radiopharmaceutical analysis (RTLC2149)
- Food and water analysis for alpha-beta-gamma (LGS2515-ABS2218)
- Under Water Gamma Spectroscopy (UWGRA2116)

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ABS2218

2" & 3"

Windows

ALPHA AND BETA SPECTROSCOPY SYSTEM MODEL ABS2218 (2" & 3")

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CATALOG

SPECTROMETER

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Application

- Educational, scientific and research centers.
- Radionuclide laboratories.
- Public:

Environmental monitoring.

Radiation protective measures in case of nuclear disasters.

- Agriculture:

Monitoring and controlling the radioactivity of agriculture products.

Monitoring and controlling the radioactivity of water or any liquid

- Safety and security:

Monitoring and controlling the radioactivity of food for public or important people.

- Monitoring and controlling the radioactivity of water or any liquid

Due to the speed of analysis, it can be used in any meetings, conferences and … for insurance of food safety

Radio-immunoassay and analysis of environmental samples.

- Medicine:

Analysis and measurement of radioactivity in nuclear medicine

- In-vitro test.
- Inspection:

Food samples inspection in the entrance of border or in any suspected situation

Features

- High efficiency.
- Wide count rate range.
- Wide operational temperature range.
- Documentation of measured values.
- Low limits of detection and decision.
- Highly sensitive and uniform response.
- Supporting different data extraction and reanalysis procedures.
- Lightweight field deployable alpha/beta spectroscopy in 2 versions (2" & 3").
- Closed measuring chamber for scintillation detectors (ZnS(Ag) + plastic (PVT)).
- Printer interface.
- Permanent memory for data.
- Simultaneous and separate measurement.
- Simple operation with touch display.
- Capability of connecting to PC over USB for data transfer.
- Continuous operation under severe environmental condition.
- Special rugged design, waterproof against streaming water and fully dust protected.

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LGS2515

2” & 2.5” & 3”

Windows

LAB GAMMA SPECTROMETER (2 & 3) LAYER SHIELD MODEL LGS2515 (2”, 2.5” & 3”)

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CATALOG

SPECTROMETER

FREE DOWNLOAD

Application

- Agriculture:

  Monitoring and controlling the radioactivity of agriculture products.

  Monitoring and controlling the radioactivity of water or any liquid

- Safety and security:

  Monitoring and controlling the radioactivity of food for public or important people.

  Monitoring and controlling the radioactivity of water or any liquid

  Due to the speed of analysis, it can be used in any meetings, conferences and … for insurance of food safety

  Radio-immunoassay and analysis of environmental samples.

- Medicine:

  Analysis and measurement of radioactivity in nuclear medicine

- In-vitro test.
- Inspection:

  Food samples inspection in the entrance of border or in any suspected situation

Features

- Field Gamma spectrometer.
- Mining and mineral analysis.
- Monitoring nuclear facilities.
- Radiation protective measures in case of nuclear disasters Radionuclide laboratories.
- Environmental monitoring.
- Environmental science and industrial uses of radioisotopes.
- Research in materials.
- Closed measuring chamber with scintillation detector.
- Efficient scintillator probes (2”, 2.5” or 3” NaI(Tl)) with 2 or 3-layer shield (in 6 version).
- Extreme sensitivity to gamma rays.
- Clear, immediate indication if any nuclide-specific maximum permissible concentrations are exceeded.
- Supports all data extraction and reanalysis data.
- 4096 channels spectrum presentation.
- Very high count rate.
- High sensitivity and uniform response.
- High efficiency.
- Low limits of detection and decision.
- Documentation of measured values.
- Unique Full Spectra Analysis method.
- Simultaneous and separate measurement.
- Ready for field operation.
- Continuous operation under severe environmental condition.
- Operation in a wide temperature range.
- Special rugged design, waterproof against streaming water and fully dust protected.

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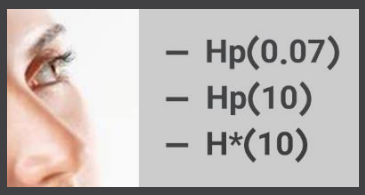
PD2318

Windows



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PERSONAL DOSIMETER
MODEL PD2318

CE

CATALOG

H*(10)

DOSIMETERS

FREE DOWNLOAD

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Application

- Public:
  - Monitoring and controlling the background dose and activity.

- Industry:
  - Metal recycling
  - Well-logging
  - Oil and gas industry
  - Geological surveys
  - Every industry that uses radioactive material and sources.

- Medical:
  - Radiation protection of patient and doctors in using radiopharmaceutical and radiation therapy.
  - Nuclear medicine laboratories.
  - Health physics (contamination monitoring on Surfaces, clothing and objects etc.).

- National Security:
  - Equipping the personnels and guards in the border.
  - Equipping the security guards in the strategic centers.
  - Radiation protection measurement in nuclear disasters.

- Defense:
  - Equipping the soldiers and guards in the border or any areas with danger of radiation.

Features

- Background radiation monitoring.
- Equipped with charger and data transfer unit.
- Measurement in wide range energies and dose rates.
- High Data Security Based on Data Reader and Charging Unit.
- Equipped with intelligent power management algorithm.
- Measurement count from 0.01 cpm to 300 kcpm.
- Equipped with a semiconductor detector (silicon with photodiode).
- Extreme sensitivity and uniform response to Beta, Gamma & X-Ray radiation (depending on version).
- Dose range from 0.1 uSv/h to 10 mSv/h @^{137}Cs.
- Cost-effective, durable and easy to use.
- Integrated design with low weight.
- Full color LCD display.
- Ready for field operation.
- Parameters self-check.
- Light and sound alarm.
- Continuous operation under severe environmental condition.
- High safety against electromagnetic, mechanical (shock and vibration) and environmental (dust and moisture) interference.

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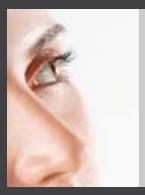
Innovator In Spectroscopy Equipment

PD2319

Windows



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PERSONAL DOSIMETER
MODEL PD2319

CE

CATALOG

H*(10)
DOSIMETERS

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Application

- Public:
  - Monitoring and controlling the background dose and activity.

- Industry:
  - Metal recycling
  - Well-logging
  - Oil and gas industry
  - Geological surveys
  - Every industry that uses radioactive material and sources.

- Medical:
  - Radiation protection of patient and doctors in using radiopharmaceutical and radiation therapy.
  - Nuclear medicine laboratories.
  - Health physics (contamination monitoring on Surfaces, clothing and objects etc.).

- National Security:
  - Equipping the personnels and guards in the border.
  - Equipping the security guards in the strategic centers.
  - Radiation protection measurement in nuclear disasters.

- Defense:
  - Equipping the soldiers and guards in the border or any areas with danger of radiation.

Features

- Integrated design with low weight.
- Dosimeter-to-PC communication.
- High sensitivity and uniform response.
- Cost-effective, durable and easy to use.
- Measurement in wide dynamic range dose rate based on two sensors.
- Adjustable sound alarm for all device functions.
- Designed for field application to measure all types of ionizing radiation (Gamma, Beta, alpha & X-ray) in three versions.
- Based on semi-conductor (Si), Scintillator and Geiger-Mueller (GM) (depends on version).
- Wide operating temperature range (-20°C to +50°C).
- Ready for field operation.
- High safety against electromagnetic, mechanical (shock and vibration) and environmental (dust and moisture) interference.
- Continuous operation under severe environmental condition.
- IP63, IP65 and IP67 protection

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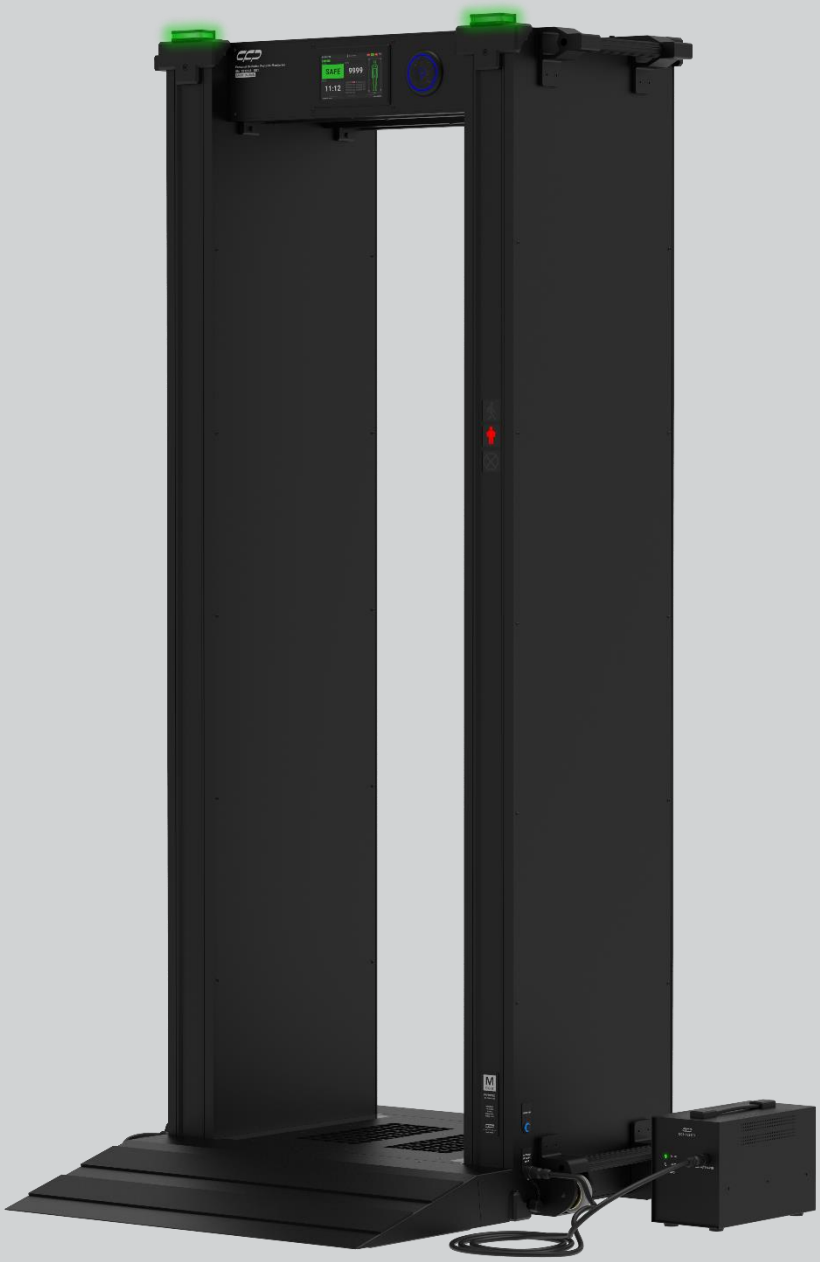
PRPM2120



PERSONNEL RADIATION PORTAL MONITORING MODEL PRPM2120

CATALOG

SPECTROMETER

FREE DOWNLOAD

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Application

- Public:
  - Monitoring and controlling the background dose and activity.
  - Environmental monitoring.

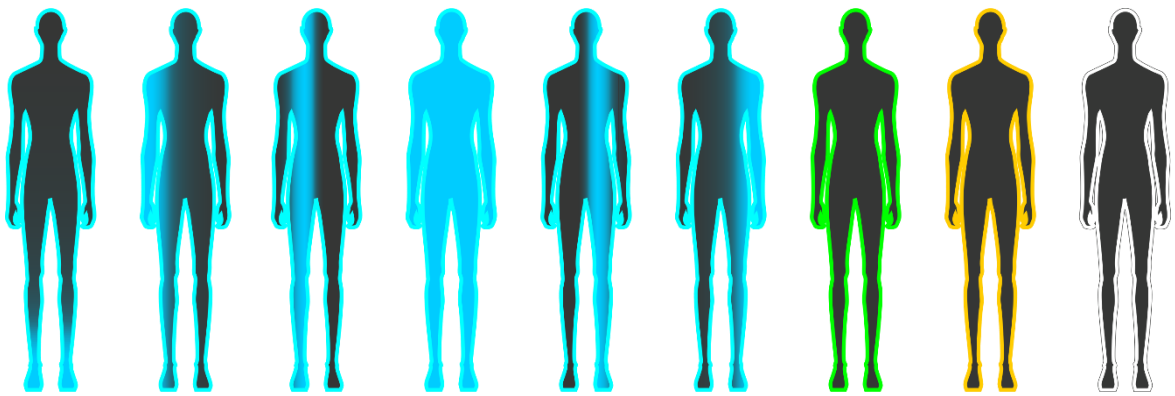
- Industry:
  - Controlling the radioactivity in the entrance and exit of the factory
  - Metal recycling
  - Well-logging
  - Oil and gas industry
  - Every industry that uses radioactive material and sources.
- Medical:
  - Monitoring and controlling the entrance or exiting the radiation source.
  - Nuclear medicine laboratories.
  - Health physics (contamination monitoring on Surfaces, clothing and objects etc.).
- National Security:
  - Monitoring and controlling the illicit material to every important or strategic center.
  - Radiation protection measurement in nuclear disasters.
  - Controlling the trafficking of illicit radioactive material and radiation inspection at borders (pedestrians), airports, ports and railways.

Defense:

- Equipping the border or any areas with danger of radiation.

Features

- User information display.
- Equipped with presence detection sensors and monitoring camera at the gate (OPT).
- Previous data storage for further exploration.
- Easy and modular design for fast mounting.
- Small natural degradation of the optical performance of the detector.
- Specified background updating Procedure.
- Low limitation in detection and decision-making.
- Equipped with programmable detection parameters.
- Equipped with adjustable audio and optical warning indicators.
- Very accurate alarms with low false alarm rate (positive & negative false).
- Support data extraction and data reanalysis.
- Ready for field operation.
- Wide range of energy performance.
- Documentation of measured values.
- Continuous operation under severe environmental conditions.
- Intelligent radiation contamination detection algorithm.
- Large plastic scintillators with high efficiency and long optical attenuation length.
- Different scan scenarios (Walk-Thru, Pause, Pause-and-Turn, Front-and-Back).
- Capability of connecting to PC over LAN interface for data transfer.
- High safety against electromagnetic, mechanical (shock and vibration) and environmental (dust and moisture) interference.



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