

Laboratory Equipment

MK-30 Sample Analysis System

The Sample Analysis System (MK-30 shielded chamber and connected PC/notebook) is intended for measuring swipe (smear) and evaporation samples and air filters. Various detectors can be used for specific applications: alpha, beta, gamma, alpha/beta, etc.



Shielded Laminar Boxes SLB series

Various types of laminar boxes are used when a dust-free environment is required in health care for example during the preparation of the radiopharmaceuticals. The box, its lead glass window and HEPA filters, is designed to protect the product against particle and bacterial contamination. Simultaneously, the box provides protection for personnel and the surrounding environment from exposure to the product being processed. Optionally the box can be fitted with a built-in Applied Activity Meter, a lead shielding, a lead handling wall, etc.



Applied Activity Meter

The Applied Activity Meter is designed for the measurement of the activity of radiopharmaceuticals. A well type ionization chamber within a lead shielding is used, connected to the display unit or PC.

The unit, with ionization chamber and processing electronics, contains the archive of calibration factors for different nuclides and geometries to facilitate the operation and metrological verifications.

Meter of the purity of radiopharmaceuticals

The system is designed for the measurement of the purity of radiopharmaceuticals by measuring the gamma spectra of the sample. It consists of a well type spectrometric scintillation detector within a lead shielding, multi channel analyser and evaluation software running on a standard PC.

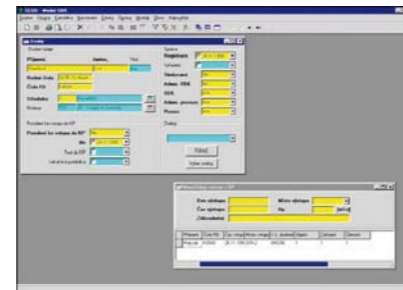
The software uses pre-defined methodologies facilitating ease of use.



Personnel dosimetry

SEOD Electronic Personal Dosimetry System

The electronic personal dosimetry system (SEOD) is intended for the operative monitoring and evaluation of personnel doses by means of electronic dosimeters. It allows doses to be restricted in accordance with the legislation limits.



The doses are compared with the personnel limits for basic time intervals (year, 5 years) and some optional (day, week, month or quarter), thereby ensuring that limits are not exceeded.

Electronic Dosimeters Terminal TED-MP series

A compact and user-friendly terminal forms part of electronic personnel dosimetry systems. It enables data to be acquired about persons and their personal doses from the electronic personnel dosimeters of different types and producers.

There are a variety of different dosimeter types that can be used (Eberline, Siemens, MGP, Rados, Atomtex, etc.). Several dosimeter readers can be implemented in one terminal, even though they may be different types or come from different manufacturers.



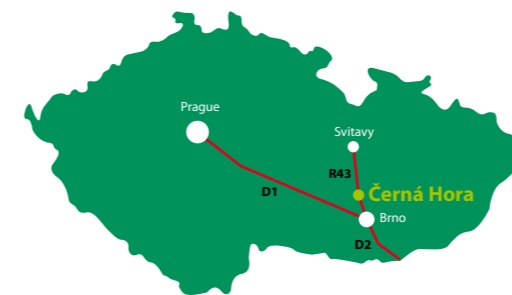
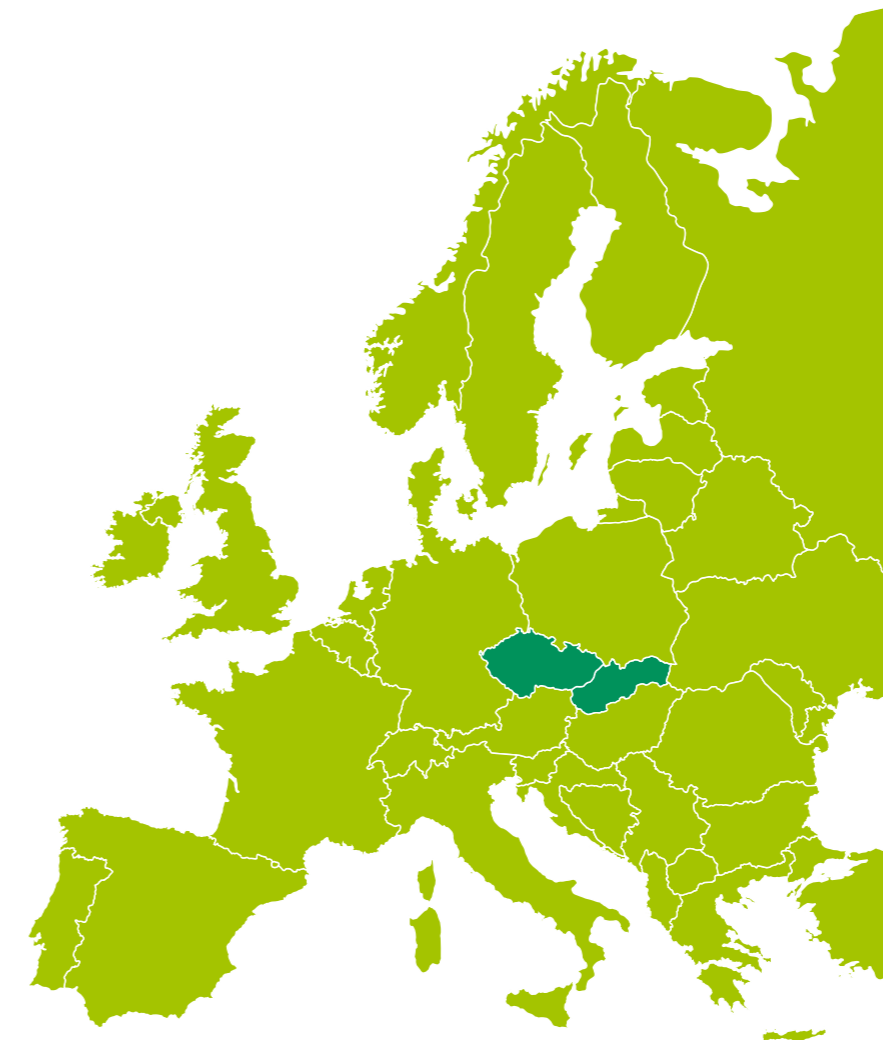
Electronic Personnel Dosimeters

Electronic dosimeters are typically used for operational dosimetry of medical personnel during X-rays monitoring and isotopic preparations. Various types of electronic personnel dosimeters from different producers can be supplied according to the specific customer's requirements.

DPD Dispenser of Personal Dosimeters

The dispensers of personal dosimeters are devices that enable automatic, fast and controlled issuing of film, thermoluminescent, optically-stimulated luminiscent, radiophotoluminiscent or other similar personal dosimeters.

Dosimeter type:
TL, RPL, OSL, Film



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Specification subject to change without prior written notice.



Flexible solutions



Overview of products and solutions for medical industry

VF, a.s. is a successful and reliable partner in the field of radiation protection and monitoring, which provides its clients with flexible, technologically advanced, high quality solutions tailored to the client's needs and expectations. One of the areas in which we offer products and solutions is the medical industry.

Orders are fully realized from processing studies, design and other documentation, through to the final delivery of the product, the development and implementation of SW, the installation and complete testing of systems on-site, as well as training the client during hand-over.

Further, we offer our clients a complete warranty and after-warranty service.

Radiation Monitoring System

AGM-02 Area Gamma Monitor



Area gamma monitor AGM-02, with GM tube and integrated display, measures the dose rate at the place of installation and provides local indication of the measurement results. It can be connected to the host system for remote indication.

Measurement capability:
1E-7 to 1E-1 Gy/hr

MDG-0X Dose Rate Meters

MDG-0X Dose rate meters are suitable for measuring dose rates of gamma radiation from very low levels corresponding to natural background up to several Gy/hr. They can be used as area gamma or gate monitors with local or remote indication in host systems. For technological measurements in areas containing more sources, where only one source should be monitored, directional dose meters with internal collimator can be used.



Measurement capability area:
2E-8 to 1E1 Gy/hr



MDN-01 Neutron Flux Monitor

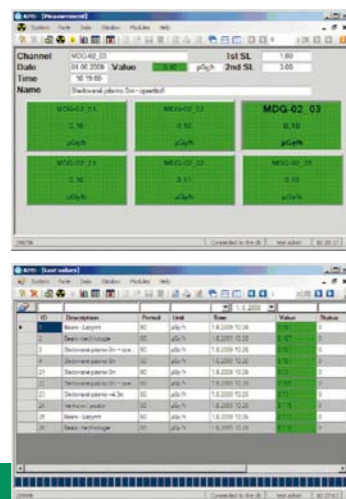
The monitor MDN-01 is designed to detect and calculate the neutron flux expressed, according to the ICRP, as ambient dose equivalent $H^*(10)$ in the ambient environment at nuclear and industrial facilities, accelerators etc. The detection part of the monitor consists of a proportional detector tube and a moderator sphere made from special polyethylene.

Measurement range: 1E-7 to 1E-1 Sv/hr

RMS Radiation Monitoring System

Radiation Monitoring System RMS is designed for the monitoring of ionizing radiation in the working environment, in gaseous and liquid effluents and in other applications.

The data server, operator's workstation and application software are basic to this system providing data acquisition, storage and display in various forms. Real-time and historical data are available in the form of tables, graphs, etc.



LZJ-22 and LZJ-10 Local Display Units

The LZJ-22 and LZJ-10 local display units are state-of-the-art devices intended for use with radiation monitoring systems. These devices provide acquisition, processing, displaying, local archiving and transmission to the host system of signals coming from detectors. A wide variety of "intelligent" or "dumb" probes can be connected locally or remotely using different interconnections – RS-485, cps, Ethernet, RS-232, USB, current loop, digital and relay I/O, etc. ASU-50 alarm slave unit can be used for very powerful optical and acoustic alarm signalling.



Monitoring of effluents

CPM-310 Continuous Particulate Monitor



The CPM-310 continuous particulate monitor is intended for the collection and measurement of radioactive alpha and beta aerosols on fixed filter. The air can be sampled from both working environments and air ventilation systems.

Measurement range:
Alpha concentration 1E-2 to 1E5 Bq/m³
Beta concentration 1E-1 to 1E3 Bq/m³

MAK-01 Liquid Activity Monitor

MAK-01 is a submersible liquid activity monitor intended for the measurement of activity of liquids in various tanks and sumps. It has integrated MCA and small Cs-137 etalon for spectra stabilization.

Typically used for the measurement of the volumetric activity of waste liquids from nuclear medicine workplaces, research institutes and nuclear facilities. The measured values are compared with clearance levels for different radionuclides.

Energy range:
25 keV to 2.5 MeV



Contamination monitors

Hand-Foot Contamination Monitors HF series

The HF series hand-foot monitors are intended for alpha, beta and gamma contamination signalling on hands and feet (depending on the detectors used). Typical usage is at nuclear power plants, radiochemical plants, research institutes, hospitals, etc.

Scintillation detectors with different thicknesses can be used.

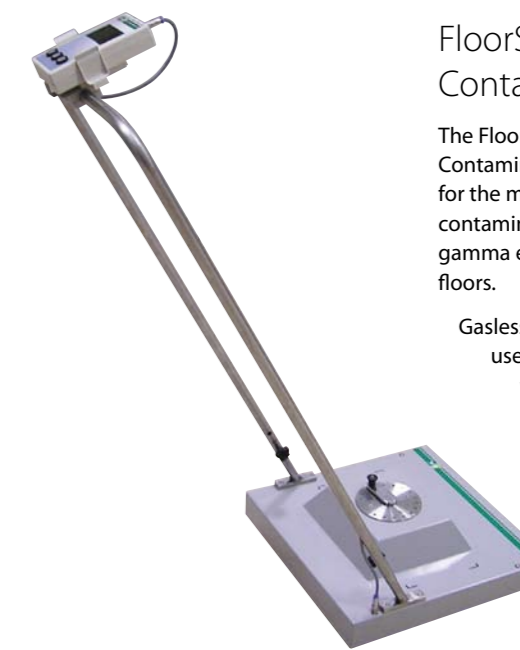
Detection limits:
MDA alpha < 0,04 Bq/cm²
MDA beta < 0,2 Bq/cm²



FloorScan series Floor Contamination Monitor

The FloorScan series Floor Contamination Monitors are intended for the measurement of surface contamination by alpha, beta and gamma emitting radionuclides on floors.

Gasless scintillation detectors are used. Dual phosphor detectors with two channel electronics for alpha discrimination are available.



Contamination Monitor FCM-02

The FCM-02 Contamination Monitor enables the measurement of the surface contamination of radiation workers, their clothing and working instruments. The measurement is based on a scintillation detector for alpha, beta and gamma radiation, depending on the detector used.

Typically FP series intelligent frisking probes are connected, with an active area of 100 cm². Dual phosphor probes with two channel electronics for alpha discrimination are available.



RP-2000 Radiometer

The RP-2000 is a hand-held radiometer which enables measuring in various situations according to the detection unit connected.

Available detection units:
The DJ-2000A is intended for surface contamination, dose rate and/or dose measurements.

The DJ-2000E detection unit is intended for alpha/beta (gamma) surface contamination measurements using a large-surface sealed proportional detector.



Portable Activity Meters PAM series

The PAM series meters are portable hand-held instruments intended for measuring surface contamination by alpha, beta and gamma emitting radionuclides. State-of-the-art and ergonomic design; scintillation gasless detectors are used.

Dual phosphor detectors with two channel electronics for alpha discrimination are available.

Available efficiencies (availability depends on the type of detector):

> 40 % for Am-241, > 35 % for Pu-239,
> 29 % for Unat, > 20 % for C-14,
> 50 % for Co-60, > 45 % for Tl-204,
> 55 % for Sr-90+Y-90, > 55 % for Cs-137



Waste measurement



TK-159 Waste Bag Monitor

The TK-159 monitor is intended for contamination measurement of solid waste stored in plastic bags. With its simple design, the device offers a cost-effective solution and user-friendly operation.

The range of the alarm levels:
Lower limit 1 kBq, Upper limit 1 000 kBq