Sensortechnik und Elektronik Pockau GmbH

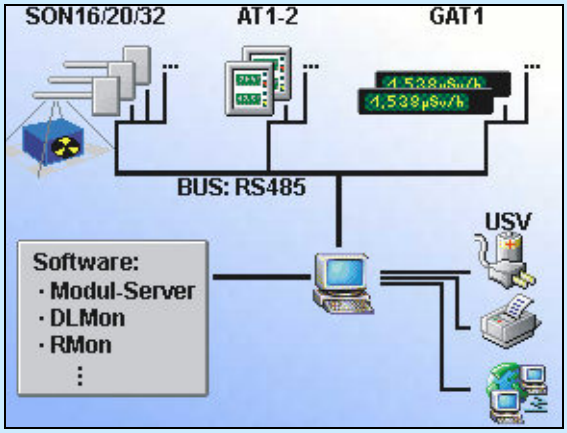
Radiation Monitoring System DLMon

Fields of Application:

- Dose rate monitoring system for use in nuclear medicine
- Area monitoring (e.g. manufacturing of radionuclides, laboratories, nuclear power plants, or storage facilities of radioactive materials)

Features:

- Custom-oriented measuring system consisting of intelligent radiation detectors and displays (up to 255 single elements).
- Data transfer with RS485 bus system
- Analysis software based on advanced Client-Server-Concept (custom-designed analysis of acquired data)
- Data storage with Microsoft SQL-SERVER
- Customization of software



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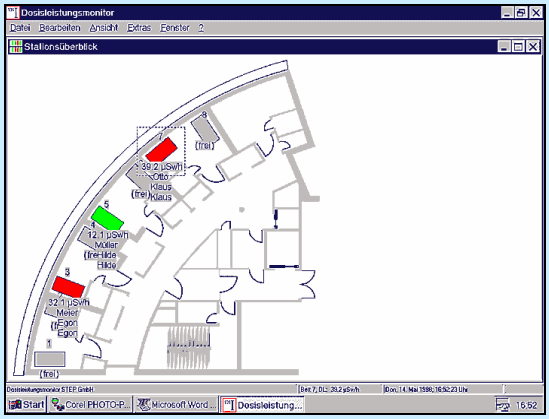
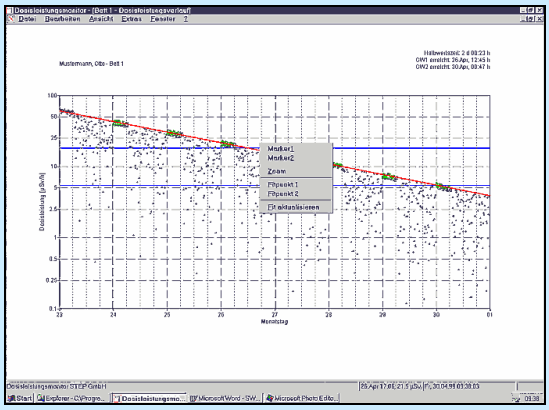
System - Components:

- intelligent detector with internal micro-controller
- intelligent single and double displays with internal micro-controller and selectable thresholds
- intelligent large-scale displays with special features
- data acquisition and processing unit (consisting of computer, printer, no-break power supply and RS-485 interface)
- Client-Server-Software (operating system: Windows NT, 2000)





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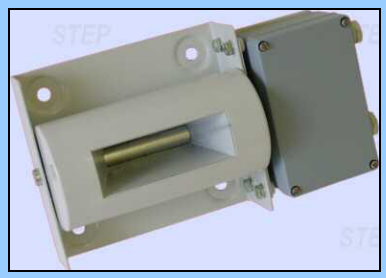
Intelligent radiation Detector: **SON16**	
Measuring value:	Photon dose equivalent rate or ambient dose equivalent rate
Detector:	Geiger-Muller tube Typ 70004
Measurement range:	1 µSv/h* ... 500 µSv/h * (Measurement time 200 s, Measurement uncertainty < 3 %)
Energy range:	35 keV ... 1.3 MeV
Collimator:	Material: Lead Acceptance angle: ± 30 °
Electronics:	• micro-controller with internal memory • 128-kByte-Flash-EPROM • data transfer by RS-485 interface • calculation of dose rate from counting rate • correction for detector dead time and background counting rate • data memory (up to 9088) values including date and time in a non-volatile cyclic memory • acquisition parameters (acquisition time, number of cycles) can be defined • continuous self-monitoring of all internal and external operating voltages; • functional tests of the detectors, interfaces and memories

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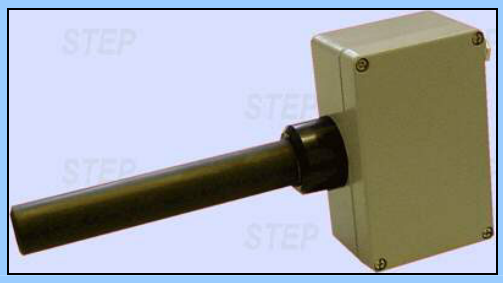
Intelligent radiation Detector: **SON20**	
Measuring value:	Photon dose equivalent rate or ambient dose equivalent rate
Detectors:	Geiger-Muller tube Typ 70013E (*)
Measurement range:	0.5 µSv/h* ... 200 µSv/h * (Measurement time 200 s, Measurement uncertainty < 3 %)
Energy range:	35 KeV ... 1.3 MeV
Collimator:	none
Electronics:	• micro-controller with internal memory • 128-kByte-Flash-EPROM • data transfer by RS-485 interface • calculation of dose rate from counting rate • correction for detector dead time and background counting rate • data memory (up to 9088) values including date and time in a non-volatile cyclic memory • acquisition parameters (acquisition time, number of cycles) can be defined • continuous self-monitoring of all internal and external operating voltages; • functional tests of the detectors, interfaces and memories

(*) The Type SON20 is available in versions with different GM-Tubes and several measurement ranges.

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Intelligent radiation Detector: **SON31**	
Measuring value:	Ambient dose equivalent rate H*(10)
Detectors:	Geiger-Muller tube Typ 70031A
Measurement range:	0.1 µSv/h* ... 1000 µSv/h * (Measurement time 200 s, Measurement uncertainty < 3 %)
Energy range:	35 KeV ... 1.3 MeV
Collimator:	optional
Degree of protection:	IP 65 (die-cast case / weatherproof protection)
Electronics:	• micro-controller with internal memory • 128-kByte-Flash-EPROM • data transfer by RS-485 interface • calculation of dose rate from counting rate • correction for detector dead time and background counting rate • data memory (up to 9088) values including date and time in a non-volatile cyclic memory • acquisition parameters (acquisition time, number of cycles) can be defined • continuous self-monitoring of all internal and external operating voltages; • functional tests of the detectors, interfaces and memories

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Intelligent display unit: **AT1 – 1** **AT1 - 2**	
Intelligent big display unit: **GAT-1**	
Single display for each detector or double display for two detectors, resp.	
Display of the measuring value: • 3 1/2 - digit display (height of digits: 17.8 mm), LCD with backlighting • quasi-analogue bar graph (20 elements) • optical and acoustic error signalling (reset by software) • 3 LED (red, yellow, green) for rapid signalling of the health risk for staff (AT1-x) • 3 different colors for rapid signalling of the health risk for staff (GAT1) • data transfer by RS-485 interface • EPROM for data storage	
Electronics:	• micro-controller with internal memory • 128-kByte-Flash-EPROM • data transfer by RS-485 interface • data memory (up to 9088) values including date and time in a non-volatile cyclic memory • internal functional tests

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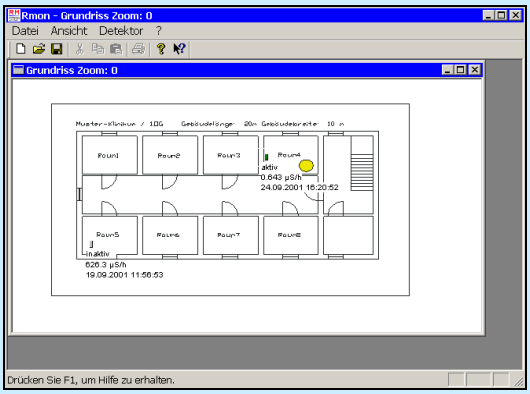
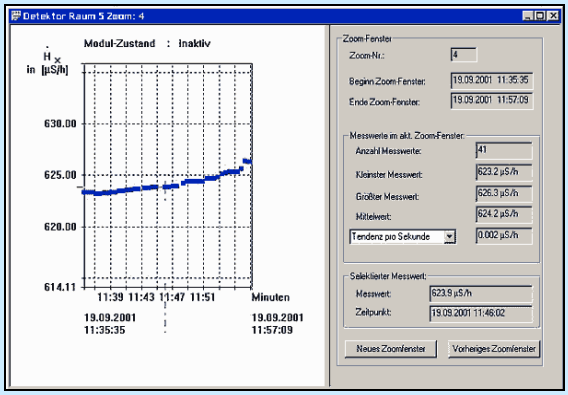
RMon-client -software:

Analysis software for room monitoring for use in laboratories and exposed rooms.

- Windows based software for PC (Window 2000, XP, 7)
- Display of the arrangement of each detector in the rooms / process to be monitored (customized ground view / floor plan)
- Detector overview: display current dose rate of all detectors as bar chart as well as by a colour code
- Display the diagram with dose rate vs. time for each detector
- Calculate the dose
- Detector calibration
- Marginal check: if pre-selected thresholds are exceeded-emission of warning signals and/or activation of safety facilities





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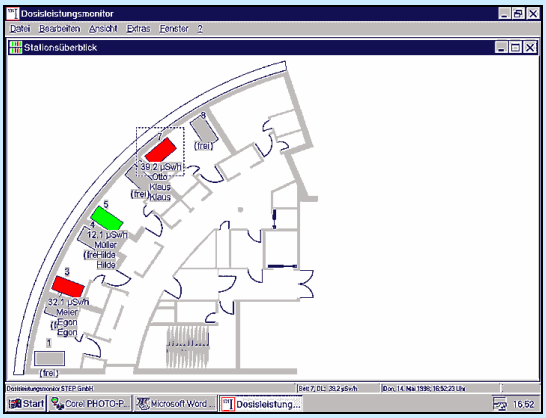
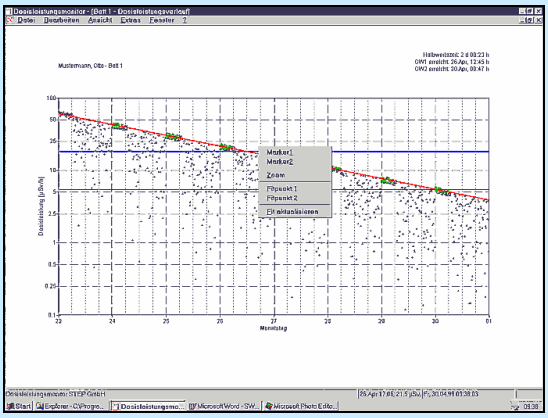
DLMon-client-software:

Analysis software for patient monitoring for use in radioiodine therapy.

- Display of the arrangement of each detector in the rooms to be monitored
- Detector overview: display of the current dose rate digitally as well as by a colour code
- Dose rate histogram
- Long-term archiving of acquired data
- Detector calibration
- Automatic monitoring of all components and functions
- Marginal check: if pre-selected thresholds are exceeded - emission of warning signals and/or activation of safety facilities
- Patient check-in (optional: chip-card reader)
- Patient data base
- Diagrams including the display of discharge-thresholds (user programmable)
- Data fit to estimate the effective half-life of the incorporated nuclide
- Transfer of patients by mouse-click
- Printing forms for patient discharge
- Drawing up reports on chosen periods





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