

SmartREM

Neutron Monitor with MCA

Detector

- new spherical Leake Neutron REM Counter with boron loaded polyethylene moderator
- construction with clearly increased neutron sensitivity
- proportional detector SP9 with Helium-3 gas filling
- energy response according to ICRP 74, corresponds to ambient dose equivalent
- REM response from thermal till fast neutrons, from 0.025eV up to 14MeV
- measurement of neutron ambient dose rate equivalent $H^*(10)$

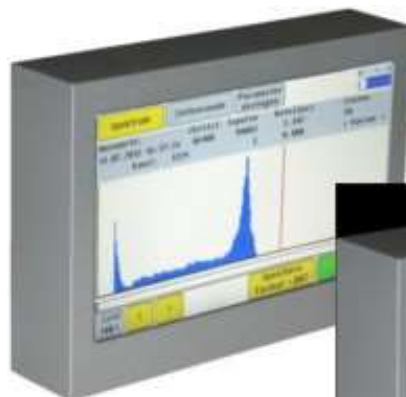
Electronics

- multi-channel analyser SMC 2100 / MCA with 2048 channels, direct on the handle of the sphere
- MCA with serial interfaces RS232 & RS485 for PC connection and link-up
- 4.3" colour display with touch functions, resolution 480x272 pixels
- storage of measuring values on MicroSD card
- readout of measuring values and spectra via USB connection
- battery and mains operation



Firmware and Software

- Firmware for SmartDisplay
 - measurement of neutron dose and dose rate $H^*(10)$ and of total dose
 - acquisition of neutron reaction spectrum $\cdot {}^3\text{He} (n,p) T \cdot$
 - single measurement, series of measurements or continuous runs
 - time or pulse pre-selection
- Software AM-SMCA01 for Windows operating systems



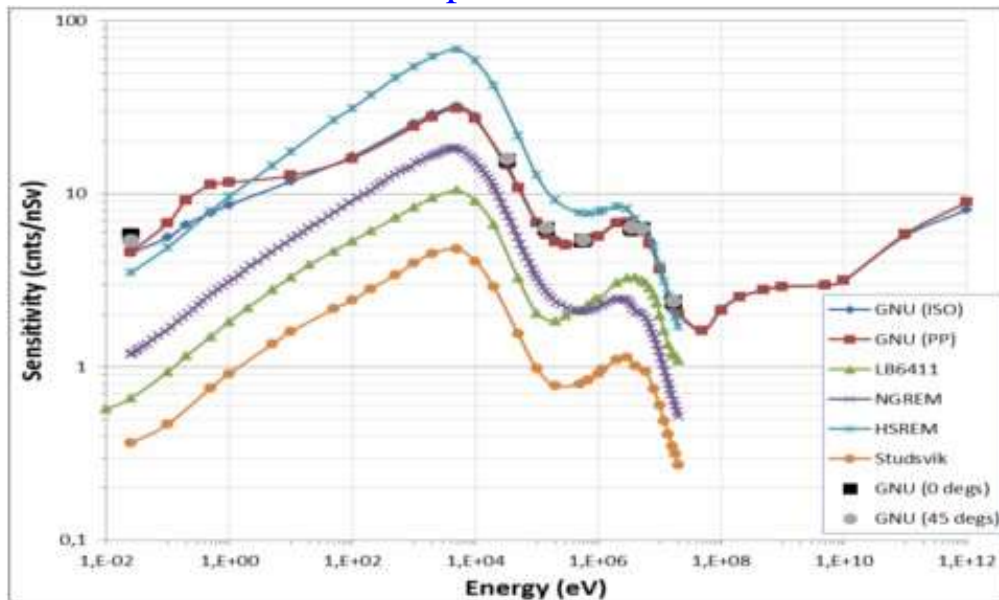
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Technical Data

- multi-channel analyser
 - shaping time 3 μ s and 9 μ s peak times
 - channel number 2048 channels
 - pulse rate up to 100'000cps
 - pulse content up to 2²⁴ pulses / channel
- detector
 - measurand H*(10)
 - neutrons from 0.025eV (thermal) till 14MeV
 - sensitivity 2.66 pulses / nSv resp. 0.74cps per μ Sv/h (1MeV)
 - gamma suppression ratio better than 3000:1
 - sensitivity in the range from 3MeV till 7MeV
- connections
 - interfaces MCA with RS232 & RS485, SmartDisplay with USB
 - power supply 3x R20 batteries or 5Vdc (2.5V till 5V)
- construction
 - total mass sphere with 208mm diameter
 - 6.5kg

Neutron-Monitors in comparison with the SmartREM Series



Source:
Nuclear Instruments
& Methods in Physics
Research

SmartREM Series	Sensitivity counts/nSv	Energy Range	Sphere Diameter mm	Total Mass kg
SmartREM	2.66	10 MeV	208	6.5
SmartHSREM	7.85	10 MeV	214	6.6
SmartLINUSREM	1.27	10 GeV	240	10.0
SmartGNUREM	5.76	10 GeV	240	10.1

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