



NIM 201

Neutron irradiation dose rate monitor - $H^*(10)$

- **continuous monitoring and display of equivalent neutron dose rate**
 - **visual, audible and electrical signal alarms when threshold levels are exceeded**
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- **detector for indoor and outdoor application**
 - **$H^*(10)$ measurement**
 - **available with or without display and local signalling**
 - **wide and high neutron energy range ($2,5 \cdot 10^{-8}$ to 16 MeV)**
 - **compact and reliable (MTBF > 20 000 hrs)**
 - **IEC 61005, IEC61322 and ICRU 57 compliance**

The NIM 201 monitor forms part of the **RAMSYS** product line. It has been developed to monitor in real time the ambient dose equivalent rate. It provides operational dose rate in units of $H^*(10)$ derived from neutron fluence according to ICRU 57 recommendations. The helium-3 proportional counter (cylindrical tube) placed inside a polyethylene sphere facilitate detection of thermal and fast neutrons. Its large energy range, associated with modular design makes it efficient, reliable and very sensitive. It is used effectively in nuclear reactors, subcritical stacks, neutron generators and irradiators, and in accelerator facilities.

Version available	Display and local signalling	Associated processing unit
NIM 201-1		LPU/PPC
NIM 201-2	X	LPDU/PPC

Physical characteristics

- radiation detected: neutron (thermal and fast)
- detector: He3 proportional counter
- moderator: polyethylene sphere:
 - \varnothing 295 mm (11.61 in)
- measurement range (IEC61005):
 - 10^{-6} to 0,1 Sv/h (10^{-4} to 10 rem/h)
- energy range: $2.5 \cdot 10^{-8}$ (thermal) to 16 MeV
- temperature range: +0°C to +55°C (32°F to 131°F)

Electrical characteristics

- power supply: 120 V/60 Hz - 230 V/50 Hz
- interfaces:
 - RS232 serial link for parameter configuration of the monitor through a computer and MASS application software
 - two 0/4 - 20mA analog outputs, one 0/4 - 20mA analog input, three programmable relays, two RS485 isolated serial links

Mechanical characteristics

- protection level: IP65 and IK07
- detector frame structure (decontaminable paint): grey RAL 7030
- dimensions: 817 mm x 312 mm x 310 mm (32.2 in x 12.3 in x 12.2 in)
- weight : ~ 31 Kg (68.2 lb)

Qualification

- EMI/RFI: EN 55022, IEC 61000-6-2, IEC 61000-6-4

Alarm signaling (applicable to LPDU only)

- audio indicator: buzzer sound alert rated at 90dBa at one meter
- visual indicators: programmable operation lights such as red for high alarm, yellow for alert alarm, green for normal operation

Accessories

- RAMSYS software
- junction box to get all signals via a terminal block
- set of calibration (Am-Be source with its polyethylene sphere)
- local signaling