

PORTABLE DIGITAL NEUTRON REM MONITOR

Model # REM-PRS

FEATURES:

- PORTABLE
- LINEAR RESPONSE
- 4 DECADES COVER 0.1 mRem/h to 2 Rem/h
- SCALER INTEGRATES DOWN TO 1 μ Rem/ hr
- FULLY SOLID STATE
- FULLY REGULATED POWER SUPPLY
- PULSE INPUT No Zero Drift
- TRUE REM RESPONSE (LASL-designed Moderator)
- INTERNAL SPEAKER Aural as well as Visual Readout



Figure 1: REM-PRS

APPLICATION: Neutron dose rate monitoring in and about nuclear reactors, neutron sources, neutron generators, customs inspections, etc...

GENERAL DESCRIPTION: The **REM-PRS** utilizes an ultra - stable high voltage bias supply for the BF-3 Proportional Neutron Detector. Counts from the detector are amplified, discriminated (to remove gamma components) and shaped to present neutron REM rate information to meter and speaker. The speaker furnishes individual clicks on the first three ranges.

The meter on the **REM-PRS** reads accurately from thermal to 10 MeV. It also detects more energetic neutrons.

The moderator /detector assembly is enclosed in an enameled thin wall spun aluminum shell for easy decontamination and physical protection.

The housing of the instrument package is smoothly finished, attractive, scrubbable enameled aluminum. A 2-1/2 inch, wide viewing angle meter presents 0.2 mRem/h to 2 Rem/h plus battery check marking. Also the digital scaler feature of the PRS-5 allows integration and long count times, so neutron fields as low as 1 μ Rem/hr can be accurately measured in 2 hrs. Controls include on-off and range switch, speaker on-off volume control screwdriver calibration adjust and push - button battery check switch. Probe connector is MHV low noise Teflon insulated.

SPECIFICATIONS:

Resolving Time:	1 μ Sec.
Gamma Rejection:	5 R/h.
Energy Response:	Within \pm 10% of ICRP curve for most of energy range.
Directional Response:	\pm 10% in uniform field.
Time Constant:	Fast 2 second and slow 10 sec. Can be adjusted by user anywhere from 0.2 - 20 Sec.

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\$Revision: 1.1 \$

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SPECIFICATIONS (Continued):

Environmental:	0-95% RH. 10 - 50 °C.
Detector:	BF-3 neutron proportional tube T/A Model NT-1310
Moderator:	10" diameter REM response low density polyethylene (LASL design) sphere.
Dimensions:	10" x 10" x 15".
Total System Weight:	23.5 lbs.
Accessories:	External battery charger available 115 or 220 VAC 50 / 60 Hz.

PRS-5 ELECTRONICS:

Readout:	6 digit LCD.
Time Base:	Crystal controlled 1-99 sec, 1-99 min, and free running.
Run Modes:	Single shot, autcycle.
Display Modes:	Latched, continual update.
Gate Monitor:	Green LED, 1 second cycle.

ANALOG

Meter:	0-500 cpm recessed rugged (optional SI units).
Ranges:	x1; x10; x100; x1,000 (0-500, 5,000, 50,000 and 500,000 cpm).
Time Constant:	2 sec (fast) / 11 sec (slow).
Pulse Monitor:	Red LED one flash per pulse.
Additional Probes Optional:	Usable probes cover range 1 μ R/hr to 1000 R/hr; 1 cpm to 500,000 cpm; 0.1 mRem/hr to 10 Rem/hr.
Audio Indicator:	Piezo electric sounder with volume control.
Strip Chart Recorder Output:	Standard feature 0-1 Volt.
Single Channel:	3 switch selectable windows. 2 preset (resettable) window positions plus one "variable".
Analyzer/Discriminator:	10-turn, 1000 division pot for each threshold. 10-turn, 1000 division pot for window width.
Additional Power Optional:	Mates with T/A probes, any GM, proportional or scintillation, alpha, beta, gamma, positron, x-ray, neutron or tritium. Detector Connector: BNC bulkhead mount (MHV optional). Detector Bias: 0-2500V regulated and filtered Supply: High Voltage is displayed on meter by pushing a button.

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POWER

Batteries:	3 each D cells, accepts Alkaline, Carbon-Zinc, Lithium, or rechargeable NiCads with no adjustment required. Separate sealed battery compartment available from outside case.
Battery Life:	Nominal 300 hours with alkaline batteries.
Battery Check:	On main range switch and meter marking.
AC Operation:	Connector for provided AC adapter.
Splashproof:	Seals and gaskets throughout.
Construction:	All plug in circuit cards; essentially no wires. Sturdy deep drawn aluminum case.
Dimensions:	23cm L x 10.5cm W x 14.5cm (9" x 4.1" x 5.7"). Includes handle and tilt stand both in folded position.
Weight:	1.7 Kg (62 oz) including batteries - Electronics.
Options:	Connection for interface to printer or computer SI units.
Accessories:	Printer. Strip Chart Recorder. Over 50 different T/A probes and sample counter detectors. Probe holder supplied.

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