



**Safety and Security
Instruments**

A Division of Science Applications
International Corporation

PD-3i™ DOSIMETER

Integrated Alarming Dosimeter for Primary and Secondary Dose Measurement

- *Rugged*
- *Accurate (< 2% when compared to TLD reads)*
- *Small, Compact Size*
- *Fully User Programmable*
- *Easy to Manage Dose History*
- *Operate from any AA Battery*
- *Two Minute Calibration*



PD-3i shown with optional badge clip

The PD-3i™ represents the latest in electronic dosimeter technology and has been designed to exceed all current manufacturing standards. Each PD-3i™ is furnished with a complete calibration, environmental test, and Q.A. report and contains a full menu of user-defined operating parameters.

The PD-3i™ operates from any AA format battery, any chemistry, including standard 1.5 volt alkaline batteries. The PD-3i™ will run for more than 2,000 hours in typical power plant/DOE applications using standard alkaline batteries, making it the most economical dosimeter to operate.

Enhanced performance and protection for all environmental conditions and improved accuracy/linearity are part of the built-in technology found in the PD-3i™. External RF and EMI fields, which typically interfere with other dosimeters, are not a problem for the PD-3i™ due to the design of its energy compensated, miniature Geiger detector.

Available options include an attachment which provides a bi-directional serial link for area monitoring under industry standard RS-485 (no need to furnish a wire for each dosimeter), extra-large, external display module for "hot spot" monitoring, radio transmitter for spread spectrum telemetry, and "teletector" interface. The PD-3i™ also includes an environmentally isolated speaker, extra lanyard attachment point, a ruggedized case, and a secured battery compartment.

ELECTRONIC DOSIMETER MODEL PD-3i™

TECHNICAL SPECIFICATIONS

PHYSICAL PARAMETERS

SIZE: 48 mm x 72 mm x 17 mm
WEIGHT: Less than 90 grams with battery
RUGGEDNESS: Exceeds drop-test requirements of ANSI N13.27 - 1981
(Tested for 40 drops from 1 meter onto concrete)
DETECTOR: Energy-compensated miniature Geiger-Mueller tube

PERFORMANCE CHARACTERISTICS

DOSE RANGE: 0 μ R to 999 R
DOSE RESOLUTION: < 2 μ R
DOSE RATE RANGE: \pm 15% or \pm 20 μ R/h from Background to 500 R/h.
(Does not include counting statistics which are < \pm 20% (1 σ) for rates above 10 mR/h)
FOLD OVER: No foldover up to 10,000 R/h
ENERGY RESPONSE: Tissue equivalent to within \pm 25% from 55 keV to 6 MeV (-70% response at 40 keV)
ALARM SETPOINT RANGE: Alarms are set through the PDR-1™ Reader
DOSE: 10 μ R to 999 R
DOSE WARNING: 10 μ R to 999 R
DOSE RATE: 40 μ R/h to 999 R/h
STAY TIME: 6 seconds to 109 hours
STAY TIME WARNING: 6 seconds to 109 hours
VISUAL ALARMS: Dose alarm flashes "DOSE"; Dose rate alarm flashes "RATE"; Stay Time shows "m".
Low battery voltage indicated by battery icon with at least 24 hours of remaining life.
AUDIO ANNUNCIATOR: Speaker sound level >75 dBA at 30 cm (continuous tone)
Dose/Warning Alarms: Continuous double/single beat until acknowledged
Rate Alarm: Continuous beeping while above Rate alarm
Stay Time/Warning Alarm: Continuous double/single beat until acknowledged
DISPLAY: Liquid Crystal Display (LCD) with push-button controlled backlight
Autoranging three-digit, floating-point readout (μ R, mR, or R units)
Low Battery Indicator
Gamma icon (γ) flashes once per Geiger pulse (~1.5 μ R)
CHIRP: One beep per pre-set dose increment
Dose-increment setting range: 2 μ R to 50 mR
DOSE HISTORY: >200 points (accessible with PDR-1™ Reader)
Interval Range: 0 to 109 hours in 6 second increments
BUILT IN TEST: Continuous monitoring of High-Voltage Power Supply and GM Tube. Abnormal operation indicated by LCD message and audio annunciator.
ACCESS STATUS: PDR-1™ toggled flag selects normal data display or the word "Out" (logged out)
TAMPER STATUS: PDR-1™ readable flag indicates unauthorized, temporary battery removal
SERIAL INTERFACE: Bidirectional serial port (accessible via the battery well) for driving remote devices including larger active displays, RS-485 or PLC communication ports, radio transmitters, etc.
POWER: Compatible with any AA size battery with output voltages from 1.25 to 3.6 VDC
Battery Life (normal use):
Duracell Alkaline > 2250 hours in 10 mR/h field
Battery Life (Idle Mode)
Any chemistry – Battery shelf-life
ENVIRONMENTAL: Operating Temperature: -28°C to +60°C
Humidity: Up to 95% R.H., non-condensing
Vibration: Every dosimeter vibrated to > 6 g rms prior to shipping
CALIBRATION: Digital calibration factor set with PDR-1™ Reader. Recommended user calibration interval is two years minimum (factory calibration not required).
USER SET OPTIONS: Rate Display, Rate Audio Alarm, Switch to Rate Display on Rate Alarm, Stay Time Display, Dose Alarm Acknowledgement, Stay Time Alarm Acknowledgement, 6 second Backlight Hold, Minimum Units in μ R or mR, Default Rate Reading, Truncation of Fractional mR Dose, Anti-Theft Alarm, Dose-History Buffer Organization, Dose initialization on powerup (zero or pre-powerdown value), Idle Mode Disable, Local/Remote Mode Control.
AVAILABLE ACCESSORIES: Audio Alarm earpiece or headset, AA-4 Audio Alarm Amplifier (110 dBA output), and custom front panel labels

Note: Due to our efforts to continually improve this product, specifications, dimensions, and operating procedures are subject to change without notice. All specifications and measurements are approximate, based on the standard configuration; results may vary with the application and environment.

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