

PD-3i-s™ and PD-10i™

ELECTRONIC, ALARMING PERSONAL DOSIMETERS



DESCRIPTION

SAIC's PD-3i-s™ and PD-10i™ electronic dosimeters offer personal radiation dose and dose rate monitoring in a rugged, lightweight package.

The PD-3i-s and PD-10i dosimeters measure photon radiation and display cumulative dose and dose rate. The devices issue loud audible alarms when specified dose, dose rate or stay-time limits are exceeded. When compared to other gamma dosimeters, SAIC's dosimeters offer increased sensitivity and reliability, reduced false alarms and long-lasting calibration.

The PD-10i dosimeter is a stand-alone device—its alarm settings and other functional parameters are fully customizable by the user. The alarm settings and other functional parameters of the PD-3i-s dosimeter are preset at the factory and may only be modified using SAIC's Model PDR-1 Dosimeter Reader and a compatible computer. All SAIC dosimeters are compatible with the PDR-1 Reader and may be used with several software packages to manage dosimeter inventory, worker exposure and perform calibrations.

KEY FEATURES

- Geiger-Mueller tube operation allows superior accuracy and protection from radio frequency interference, microphonic effects and temperature changes
- Full-featured, including dose alarm, dose rate alarm, chirp and stay-time alarms
- Highly visible, bright, flashing red LEDs
- Loud audible alarm
- On-off switch (PD-3i-s only) allows dosimeter to be turned on and off and reset without reader interface
- Extended dose rate range from background to 500 R/hr provides sufficient sensitivity in low-dose environments and accurately records high levels of radiation
- Informative, easy-to-read automatic ranging LCD display
- Backlight with six-second dwelling time allows reading in low-light situations
- Uses AA-sized battery (any voltage)
- Low-power usage provides long battery life (typically 2,250 hours continuous use with 1.5V AA battery)
- Idle Mode allows shutdown of unit when not in use, increasing battery life
- Dose History retains up to 223 dose data points
- Rugged construction with impact-resistant plastic case and metal clip significantly increases useful life of the dosimeter
- Built-in self-test continuously monitors operability of radiation sensor, protecting against exposure resulting from inadvertent use of a defective dosimeter

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PHYSICAL PARAMETERS

Dimensions:	52 mm x 89 mm x 24 mm (2" x 3.5" x 0.9")
Weight:	130 grams (4.6 oz) with battery
Ruggedness:	Meets drop test requirements of ANSI N13.27 – 1981 (Tested for 40 drops from 1 meter onto concrete)
Detector:	Miniature Geiger-Mueller tube, energy compensated

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/hr from background to 500 R/hr. Does not include counting statistics which are less than \pm 20% (1 sigma) for rates >10mR/hr.
Fold Over:	No fold-over up to 10,000 R/hr
Energy Response:	Tissue equivalent to within \pm 25% from 55 KeV to 6 MeV (-70% response at 40 KeV)
Alarms:	<ul style="list-style-type: none">• Dose: 10 μR to 999 R• Dose Warning: 10 μR to 999 R• Dose Rate: 40 μR/hr to 999 R/hr• Stay Time: 6 sec to 109 hrs• Stay Time Warning: Settings from 6 sec to 109 hrs• Dose alarm flashes "DOSE"• Dose rate alarm flashes "RATE"• Stay-Time shows "m" for minutes• Low battery voltage indicated by battery icon with at least 24 hours of remaining life.
Chirp:	One beep per preset dose increment. Dose-increment setting range: 2 μ R to 50 mR.
Audio	<ul style="list-style-type: none">• Speaker sound level >75 dBA at 30 cm
Annunciator:	<ul style="list-style-type: none">• Dose/Warning Alarms - continuous double/single beat until acknowledged• Rate Alarm - Continuous beeping while above rate alarm level• Stay Time/Warning Alarm - Continuous double/single beat until acknowledged
Visual Readout:	<ul style="list-style-type: none">• Liquid crystal display (LCD) with push button-controlled backlight• Three-digit floating point readout – units of μR, mR, or R auto-ranging• Low battery indicator
Dose History:	<ul style="list-style-type: none">• 223 points (accessible with SAIC's PDR-1 Dosimeter Reader)• Interval Range: 0 to 109 hrs in 6 second increments

Built-In Self-Test:	Continuous monitoring of High Voltage Power Supply and GM Tube. Abnormal operation indicated by LCD message and audio alarm
Access Status:	Toggled flag selects normal data display or "Out" (logged out)
Tamper Status:	Readable flag indicates unauthorized, temporary battery removal
Power:	<ul style="list-style-type: none">• Standard AA Batteries• Alkaline > 2250 hours at 10 mR/hr
Calibration:	Digital calibration factor set with SAIC's PDR-1 Dosimeter Reader. Recommended user calibration interval is two years minimum (factory calibration not required).
Environmental:	<ul style="list-style-type: none">• Operating Temperature: -18°F to 110°F (-28°C to +60°C)• Humidity: Up to 95% R.H., non-condensing• Meets the IP-54 standard for water resistance
User-Configurable Options:	<ul style="list-style-type: none">• Dose Rate Display• Dose Rate Audio Alarm• Switch to Dose Rate Display on Dose Rate Alarm• Stay Time Display• Dose Alarm Acknowledgment• Stay Time Alarm Acknowledgment• 6-second Backlight Hold• Minimum Units in μR or mR• Default Rate Reading• Truncation of Fractional mR Dose• Anti-Theft Alarm• Dose History Buffer Organization• Dose Initialization On Power-up (Zero or Pre-Power-Down Value)• Idle Mode• Local/Remote Mode Control
Warranty	<ul style="list-style-type: none">• 1 year parts and labor

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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