

# DoseRAE

## Electronic Personal Dosimeter

### For Personal Radiation Dosage Monitoring

DoseRAE is a rugged, lightweight, direct-reading electronic personal dosimeter that provides superior dose monitoring accuracy.

#### Accurate Readings

The sensitive and sturdy Geiger-Mueller tube of the DoseRAE provides accurate dose readings with a resolution of less than 0.02  $\mu\text{Sv}$  (2  $\mu\text{R}$ ).

#### Loud Alarm

DoseRAE alerts the wearer with a loud 75+dB alarm and big, bright flashing LEDs.

#### Stay-Time Readings and Alarms

DoseRAE tracks stay-time, the amount of time left until the dose alarm level is reached if the wearer stays in the current radiation field. An absolute stay-time alarm and a stay-time warning alarm give the wearer plenty of advance notice to finish work in a radiation area before reaching the dose alarm threshold.

#### Programmable Alarms

Two versions of dosimeter are available:

- **DoseRAE-P** allows alarm settings to be changed “on-the-fly” using the dosimeter’s buttons.
- **DoseRAE’s** settings can only be changed using the dosimeter reader, preventing wearers from inadvertently changing alarm setpoints.

#### Key Features

- Geiger-Mueller tube for superior accuracy and protection from RFI, microphonic and temperature effects
- Prominent visual and audible alarm alerts
- Extended 0 to 999 Sv (0 to 999 R) dose range
- Easy-to-read autoranging LCD provides dose, dose rate and stay-time information
- A single AA battery lasts more than 750 hours
- Dose history stores 200 data points
- Dust and shock resistant
- Multiple alarms based on dose, dose rate and stay-time
- Long calibration life
- Built-in self-test continuously monitors the condition of the radiation sensor, and alerts the wearer if the dosimeter is not functioning properly

#### Applications

Monitor dose to individuals in nuclear power plants and research facilities, hospitals, and industrial locations that manufacture or use radioactive gauges and imaging technology



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## Specifications\*

### Dosimeter Specifications

SENSOR	
<b>Radiation Detector</b>	Miniature, energy-compensated Geiger-Mueller tube
<b>Energy Response</b>	Tissue equivalent to $\pm 25\%$ from 55keV to 6MeV
<b>Dose Range</b>	0 $\mu$ Sv to 9.99 Sv (0 $\mu$ R to 999 R)
<b>Dose Resolution</b>	$\leq 0.02 \mu$ Sv ( $\leq 2 \mu$ R)
<b>Dose Rate Range</b>	0 to 5 Sv/h (0 to 500 R/h)
<b>Dose Rate</b>	$\pm 15\%$ or $\pm (20 \mu$ R/h)
<b>Accuracy</b>	Does not include counting statistics which are less than $\pm 20\%$ (1 sigma) for rates $> 0.20$ mSv/h (20 mR/h)
<b>Foldover</b>	No foldover up to 100 Sv/h (10,000 R/h)
<b>User Calibration</b>	User calibration recommended at least every two years Factory calibration not required
ALARMS	
<b>Alarm Alerts</b>	<ul style="list-style-type: none"> <li>Loud 75+ dB @ 30 cm for noisy environments</li> <li>Highly visible LED lights on both sides of LCD graphic display</li> </ul>
<b>Alarm Settings</b>	<ul style="list-style-type: none"> <li><b>Dose:</b> 0.10 <math>\mu</math>Sv to 9.99 Sv (10 <math>\mu</math>R to 999 R)</li> <li><b>Dose Warning:</b> 0.10 <math>\mu</math>Sv to 9.99 Sv (10 <math>\mu</math>R to 999 R)</li> <li><b>Dose Rate:</b> 0.40 <math>\mu</math>Sv/h to 5.00 Sv/h (40 <math>\mu</math>R/h to 500 R/h)</li> <li><b>Stay Time:</b> 6 seconds to 109 hours</li> <li><b>Stay Time Warning:</b> 6 seconds to 109 hours</li> <li><b>“Chirp” alarm:</b> 1 beep per accumulated dose increment (0.02 <math>\mu</math>Sv to 0.50 mSv or 2 <math>\mu</math>R to 50mR)</li> <li>Low battery alert when 24 hours of life remain</li> </ul>
DATALOGGING AND COMMUNICATION	
<b>Data Storage</b>	200 data points
<b>Datalog Interval</b>	6 seconds to 109 hours
<b>Communication</b>	Datalog accessible using SAIC Dosimeter Reader PDR-1™
POWER	
<b>Battery</b>	1 AA alkaline battery, 1.25 V to 3.6 V, easily accessible with a coin
<b>Operating Period</b>	More than 750 hours
OPERATING ENVIRONMENT	
<b>Temperature</b>	-28° C to 60° C (-18° F to 140° F)
<b>Humidity</b>	0% to 95% (non-condensing)
<b>Shock Resistance</b>	Passes drop test from 1 m (39") onto concrete
<b>IP Rating</b>	IP54
PHYSICAL CHARACTERISTICS	
<b>Display</b>	LCD display with pushbutton backlight Three-digit floating-point readout
<b>Direct Readout</b>	<ul style="list-style-type: none"> <li>Dose and dose rate, autoranging in units of <math>\mu</math>Sv, mSv, or Sv (<math>\mu</math>R, mR, or R)</li> <li>Access status: toggles normal display or “Out” (logged out)</li> </ul>
<b>Tamper Status</b>	Readable flag indicates temporary, unauthorized battery removal
<b>Reliability</b>	Built-in continuous self-test monitors power supply and G-M tube. Abnormal operation indicated on LCD
<b>Key Pad</b>	2 operation buttons
<b>Size</b>	52mm x 89mm x 24mm (2.0" x 3.5" x 0.9")
<b>Weight</b>	130 g (4.6 oz)
<b>Attachments</b>	Rugged metal alligator clamp and belt clip

\*Specifications are subject to change

### Detector kit includes:

- DoseRAE or DoseRAE-P dosimeter
- Belt clip
- Alligator clip
- 1 AA alkaline battery

### Optional Equipment:

- SAIC Dosimeter Reader (PDR-1™)

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