PEN Dosimeter Instruction Manual

The **PENS** are rugged direct-reading carbon fiber dosimeters that measure and directly display the radiation dose or quantity of gamma and x-ray exposure.

Procedure For Dose Measurement Using PEN Dosimeters

1) Look through lens of dosimeter towards a bright light.

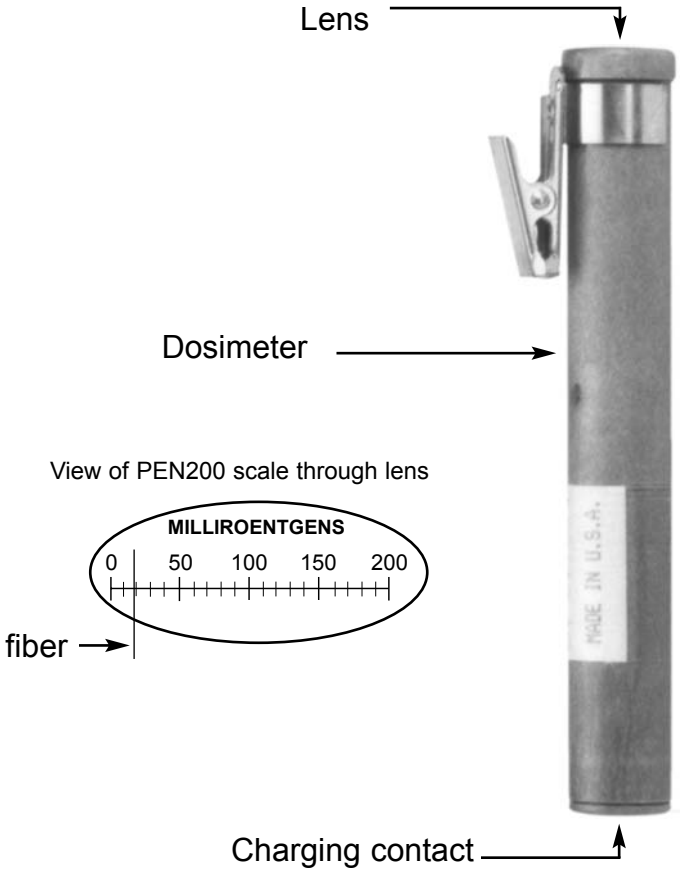
2) Fiber should be at zero. If it is not, record measurement, or use Radiation Alert® Charger to charge dosimeter before using.

3) Once fiber is on zero, clip dosimeter to person or object to be monitored.

4) Record time and date.

5) When monitoring is complete, record time, date, and dosimeter measurement. To obtain dosimeter measurement;
- Look through lens towards light.
- Read scale.

6) To clean the lens and charging contact use only water on a damp cloth or swab. Distilled water is preferable. **Do not use any chemical substance such as; alcohol, glass cleaner, etc..**



Specifications

Exposure Range:

PEN200	0 to 200mR (gamma and x-rays).
PEN500	0 to 500mR (gamma and x-rays).
PEN2	0 to 2R (gamma and x-rays).
PEN5	0 to 5R (gamma and x-rays).
PEN20	0 to 20R (gamma and x-rays).
PEN2mSv	0 to 2mSv (gamma and x-rays).
PEN5mSv	0 to 5mSv (gamma and x-rays).

Accuracy:

±10% of true dose for Cs-137 or Co-60 gamma.

Energy Dependence:

±10% maximum change in sensitivity for x and gamma ray energies from 16 keV to 6 MeV.

Rate Response:

Dosimeters are dose rate independent.

Electrical Leakage:

In the absence of radiation, the dosimeters leakage or self discharge is less than 0.5% of full scale in 24 hours at 50° C. At 20° C dosimeters will read background radiation. After gross over exposure totaling up to 2000 R the leakage is less than 5% of full scale in 48 hours at 20° C. Thereafter, the leakage will decrease to original values.

Charging Voltage:

Dosimeters are capable of being charged to “zero” with 140 to 195 volts.

Operational Characteristics:

1. A maximum change in sensitivity of ±10% may occur under any probable combination of the following; A) Temperature range of -20° C to +50° C, B) Greater than 50,000 foot altitude for one month, C) 90% Relative humidity. 2. Highly resistant to shock and vibration.

Weight:

Approx. 19 grams (0.7 oz.)

Size:

PEN- 200, 500, 2mSv, 5mSv	Length; 11 cm (4.48 inches) Diameter: 1.5 cm (0.6 inches)
PEN- 5, 2, 20	Length; 11.5 cm (4.52 inches) Diameter: 1.5 cm (0.6 inches)

Material:

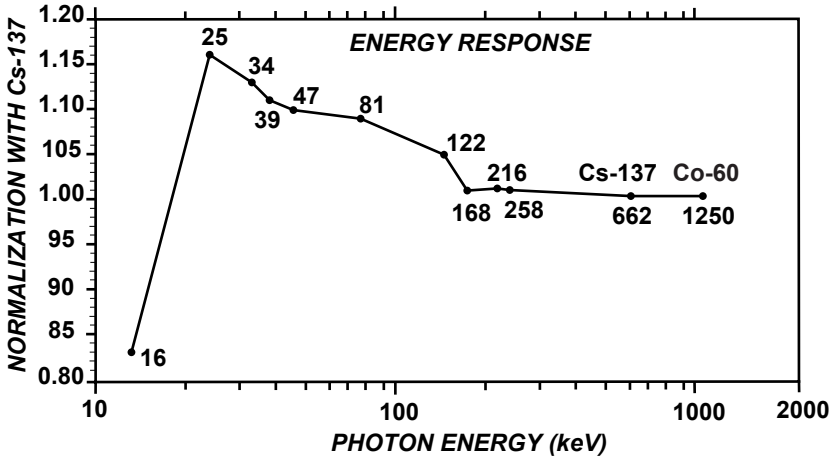
Barrel - carbon fiber-filled high strength electrically conducting plastic with metal clip.

Warranty:

2 year limited warranty

Made in U.S.A. **Specifications subject to change**

S.E. INTERNATIONAL, INC.
P.O. Box 39
Summertown, TN 38483-0039 USA
Tel: 931-964-3561 Fax: 931-964-3564
www.seintl.com | radiationinfo@seintl.com



LIMITED WARRANTY

ELEMENTS OF WARRANTY: This warranty covers all materials and craftsmanship in this product to be free from defect for a period of two years with only the limitations or exclusion set out below.

WARRANTY DURATION: This warranty shall terminate and be of no further effect two years after the original date of purchase of the product or at the time the product is: a) damaged or not maintained as is reasonable or necessary, b) modified, c) repaired by someone other than the warrantor for the defect or malfunction covered by this Warranty, d) used in a manner or purpose for which the instrument was not intended or contrary to the written instructions or e) is contaminated with radioactive material. This warranty does not apply to any product subject to corrosive elements, misuse, abuse, or neglect.

STATEMENT OF REMEDY: In the event the product does not conform to this warranty at any time while this warranty is effective, the Warrantor will replace the defective and return instrument to you prepaid, without charge for parts or labor.

NOTE: While the product will be remedied under this warranty without charge, this warranty does not cover or provide for reimbursement or payment of incidental or consequential damages arising from the use of the inability to use this product. The liability of the company arising out of the supplying of this instrument, or its use, whether on warranties or otherwise, shall not in any case exceed the cost of correcting defects in the instrument, and after the said two year period, all such liability shall terminate. Any implied warranty is limited to the duration of this written warranty.

PROCEDURE FOR OBTAINING PERFORMANCE OF WARRANTY: In the event that the product does not conform to this warranty, please contact your local distributor. Defective product must be returned to the factory for replacement.

NOTE: Before using this instrument, the user must determine the suitability of the product for his or her intended use. The user assumes all risk and liability connected with such use.

PEN

Instruction Manual