

Nuclear Associates

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**Direct Reading Pocket Dosimeters
(Gamma and X-ray)**

Operators Manual

**Fluke Biomedical
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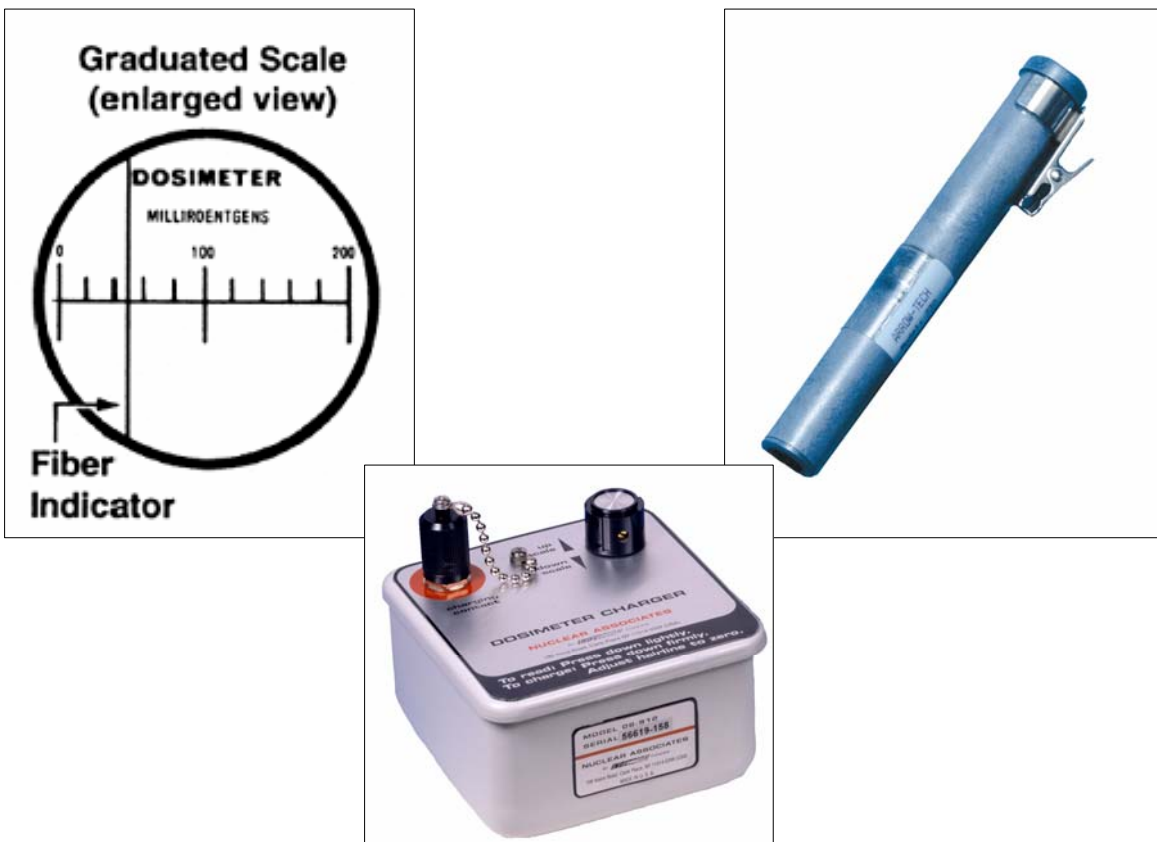
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Section 1 General Information

1.1 Product Description

A dosimeter is a pocket-size, quartz-fiber electroscope with an ion chamber for detecting an indication integrated exposure to gamma and x-radiation. It has a thin wall that permits the penetration and detection of radiation.

Accumulated radiation is read directly on an internal calibrated scale. A Dosimeter Charger (model 06-912) is required in order to return the dosimeter to zero after each exposure period.



Section 2

Operation

2.1 Introduction

One end of the dosimeter contains an optical eyepiece; the opposite end is sealed by a bellows that carries the insulated, glass-sealed charging pin. The instrument is charged by pressing the charging pin onto the receptacle on the charger.

When the charging pin is pressed into the charging socket on the charger, the pin contacts the electrometer frame. Sufficient voltage is applied to charge up the capacitor and to set the fiber to zero. The charger should be used to recharge the dosimeter to zero before each use of the instrument.

- a. Adjust the “down-scale/up-scale” control on the charger, while observing the calibrated reticle, until a zero reading is indicated.
- b. At times, a transient “kick” is experienced when zeroing the dosimeter. The charging contact of the charger automatically compensates for the kick when the dosimeter is withdrawn slowly from the contact. You can see this effect by holding the dosimeter on the charging contact while looking into the instrument. Withdraw the instrument slowly. You will note that just before the light turns off, the hairline will shift. With a little practice the hairline can be made to shift so that its final position coincides with the zero line. Optimum performance is obtained when electrostatic kick is compensated for in this manner. The hairline will remain on or near the zero position for long periods when not exposed to radiation.
- c. When resetting the dosimeter to zero, the fiber may disappear and remain hidden. To release the fiber, tap the charger-contact end of the dosimeter a few times on a hard surface (the dosimeter should be perpendicular to the surface being struck). This will usually free the fiber and permit a normal recharging operation.

At the end of the designated period of exposure, the accumulated amount of radiation can be read directly from the scale by looking through the eyepiece while pointing the dosimeter towards an external light source.

Section 3 Maintenance

3.1 Preventive Maintenance

Dosimeters are extremely sensitive instruments. Although they are constructed for rugged use, they should receive the same care as a wristwatch. Since dosimeters are hermetically sealed at the factory, they cannot be repaired or adjusted in the field. Therefore, if instrument malfunctioning is experienced, the instrument should be returned to the factory or your dealer. Dosimeters may be maintained in prescribed operating condition simply by cleaning the eyepiece lens and the charging switch insulator with clean water and a cloth that is free of lint and grit. Make sure the charging switch insulator is absolutely free of lint and moisture at all times.

Note

Do Not insert any sharp objects into, or tamper with parts in the charging switch recess. Irreparable damage may be done.

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