



PERSONAL PROTECTION

MBD-2™

Tactical and Occupational Personal Dosimeter



QUALIFICATIONS

The MBD-2 dosimeter is ergonomic, and designed to be worn comfortably on the wrist, or clipped to a garment. It is lightweight and low profile in size. The edges are rounded to accommodate clothing and gear.

- Accurate and reliable Direct Ion Storage technology
- Hybrid device (active and passive)
- Self-reading for effective decision making
- Hands-free operation
- Programmable display
- NFC and BLE communication
- Wrist worn or clipped to lanyard or garment
- Internal histogram with non-volatile memory
- Pulsed X-ray measurements to 65 nsec pulses
- Field replaceable main and internal batteries

DESCRIPTION

The MBD-2 dosimeter is a real-time, self-indicating device that requires no user intervention for operation. It measures and records dose for gamma and neutron. The MBD-2 dosimeter is based upon Mirion Technologies' patented* Direct Ion Storage (DIS) technology.

The design makes best use of the benefits of passive radiation detection with active, self-reading and recording functionality. The battery powered system includes on-board digital processing to provide dose measurement on an integrated LCD display. The passive radiation detectors are continuously responsive to radiation, with or without the field replaceable main battery.

The internal electronics provide digital memory, data logging, Bluetooth® Low Energy (BLE) wireless communication, Near Field Communication (NFC) and on-board diagnostic testing. All data resides in non-volatile memory, so there is never any danger of losing stored data or configuration settings on battery failure. The diagnostics measure and display battery condition and fault conditions of the device. The user will know when their device is working and when it requires attention.

*US Patent 8,841,622 B2

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RADIOLOGICAL CHARACTERISTICS

Display Range: 1 mrem (0.01 mSv) - 1000 rem (10 Sv)

Measurement Ranges:

Deep - Gamma:

- High accuracy range up to 50 rem (500 mSv)
- Extended range up to 500/2500 rem (5/25 Sv)

Deep - Neutron:

- DIS G+N 150 mrem (1.5 mSv) to 5 rem (50 mSv)
- DIS G+N 5 rem (50 mSv) to 200 rem (2000 mSv)
- Pin Diode 0.1 - 12.50 Gy (absorbed dose, ²⁵²Cf)

Photon:

- 65 keV - 1.3 MeV ±30% (according to NVLAP)

Neutron:

- Primary calibration: ²⁵²Cf
- Other spectrums:
 - ²⁵²Cf
 - AmBe

PHYSICAL CHARACTERISTICS

- Display of incremental dose
 - Gamma (Deep)
 - Neutron
 - Deep total
- Configurable display units mSv, mGy (rem, rad optional)
- Histogram of events with configurable data recording intervals



MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

- Dimensions: 53 x 56 x 23 mm
- Weight: 57 g with batteries
- Power:
 - Main: Lithium coin cell, CR2450
 - Internal: Lithium coin cells, CR1025
- Main battery autonomy: 800 hrs
- Internal battery autonomy: 6 years
- Measurement temperature range -32 °C to +43 °C (display not operational below -10 °C)
- Storage temperature -33 °C to +71 °C (only short-term storage in temperature over +50 °C)
- Relative humidity 95% at +60 °C
- Shock 1.2 m / hard plywood
- Protection IP67
- RF-RI-EMI Emission RS101, RS102, RS103, RS105, RE102 compliant
- Vibration/Sand/Dust, Salt Fog and Fungus Compliant IAW MIL-STD 810G

OPTIONAL ACCESSORIES

- MBD-2 Reader Software for Android and PC
- Bluetooth dongle for communication with PC, additional NFC needed for wake up

