

ELECTRONIC PERSONAL DOSEMETER EPD MK2*

Dosimeter for X-, gamma- and beta-radiation

- Advanced radiological performance
- Detector technology based upon the well proven EPD® Mk1
- Small and lightweight
- Ergonomic rugged design



The EPD® Mk2 is suitable for use as a single stand-alone dosimeter or as part of a comprehensive dosimetry management system using renowned hardware and software packages. The high quality and standard battery contribute to competitive lifetime costs.

- Multi-detector technology
- Excellent response to gamma, beta and X-radiation
- Loud, configurable audible alarm.
- Rapid Infra-red communications to reader/PC or stand-alone operation
- Excellent immunity to electromagnetic interference
- Easy to read display with optional backlighting
- Advanced radiological performance, 15 keV to 10 MeV

Specifications:

Radiological

- Sensitive to X and μ radiation, β particles
- Direct readout of dose equivalents $H_p(10)$ (deep/whole body) and $H_p(0.07)$ (shallow/skin)
- Display Units: Sv and rem (with prefixes), OR scaled in Sv and cGy (with prefixes)
- Neutron response <2%
- Dose display and storage 0 μ Sv to >16 Sv (0 mrem to >1600 rem) auto ranging
- Resolution for display 1 μ Sv (0.1 mrem), up to 10 mSv (1 rem)
- Resolution for storage 1/64 μ Sv (=1.5 μ rem)
- Dose rate display 0 μ Sv/h to >4 Sv/h (0 mrem/h to >400 rem/h) auto ranging
- Alarms dual $H_p(10)$ dose and dose rate alarms; $H_p(0.07)$ dose and dose rate alarms
- Energy response:

Photon, $H_p(10)$
 $\pm 50\%$ 15 keV to 17 keV (ref. ^{137}Cs)
 $\pm 20\%$ 17 keV to 15 MeV (ref. ^{137}Cs)
 $\pm 30\%$ 15 MeV to 6 MeV (ref. ^{137}Cs)
 $\pm 50\%$ 6 MeV to 10 MeV (ref. ^{137}Cs)

Photon, $H_p(0.07)$
 $\pm 30\%$ 20 keV to 6 MeV (ref. ^{137}Cs)
 $\pm 50\%$ 6 MeV to 10 MeV (ref. ^{137}Cs)

Beta, $H_p(0.07)$
 $\pm 30\%$ 250 keV to 1.5 MeV E (ref. $^{90}\text{Sr}/^{90}\text{Y}$)

- Angular response:
 $H_p(10)$ ^{137}Cs $\pm 20\%$ up to $\pm 75^\circ$
 $H_p(10)$ ^{241}Am $\pm 50\%$ up to $\pm 75^\circ$
 $H_p(0.07)$ $^{90}\text{Sr}/^{90}\text{Y}$ $\pm 30\%$ up to $\pm 55^\circ$

- Accuracy
 $H_p(10)$ ^{137}Cs
 $\pm 10\%$ $H_p(0.07)$ $^{90}\text{Sr}/^{90}\text{Y}$ $\pm 20\%$

- Dose rate linearity:
 $H_p(10)$ ^{137}Cs
 $\pm 10\%$ <0.5 Sv/h (<50 rem/h)
 $\pm 20\%$ 0.5 Sv/h to 1 Sv/h (50 to 100 rem/h)
 $\pm 30\%$ 1 Sv/h to 2 Sv/h (100 to 200 rem/h)
 $\pm 50\%$ 2 Sv/h to 4 Sv/h (200 to 400 rem/h)
Between 4 Sv/h and 50 Sv/h continues to accumulate dose at a rate > 4Sv/h

- $H_p(0.07)$ $^{90}\text{Sr}/^{90}\text{Y}$
 $\pm 20\%$ <1Sv/h (<100 rem/h)
Between 1Sv/h and 50 Sv/h continues to accumulate dose at a rate > 1Sv/h

Memory

- 10 year data retention without battery
- Short term dose registers for $H_p(10)$ and $H_p(0.07)$
- Approved Dosimetry Service (Dose of Record) dose memory area with password protection
- Peak dose rates with time of occurrence
- All stored times have 1 second resolution
- Count down timer, 1 hour 39 minutes 59 seconds maximum, resolution 1 second
- Event log, 23 entries for time recording of alarms, etc., for incident assessments
- Dose profile history: settable interval from 2 seconds to 35 hours, stores transitions of $H_p(10)$ and $H_p(0.07)$ at a resolution of 1 μ Sv (0.1 mrem); will store up to 579 records for transitions up to 127 μ Sv or less

Alarms

- Audible and visual alarms for dose, dose rate, count down time, read time and failure modes.
- $H_p(10)$ dose chirp settable from 0.01 μ Sv/chirp to 100 μ Sv/chirp (1 μ rem to 10 mrem/chirp)

Electrical and Mechanical

- Power supply: single AA battery 1.5 V alkaline cell for up to 30 weeks continuous operation, OR 3.6 V lithium for typically 5-10 months continuous operation (interchangeable) (depending on battery type)
- Alarm sounder: fully sealed typically 98 dB(A) at 20 cm with multiple modes
- Communications: IR interface up to 1 meter range (39")
- Display and function control by a single button on front (recessed to prevent inadvertent operation)
- Size: 85 x 63 x 19 mm (3.3" x 2.5" x 0.8") excluding clip
- Weight: 95 g (3.2 oz) including battery and clip
- Case material: high impact polycarbonate/ABS blend

Environmental

- Operating temperature:
-10 $^\circ\text{C}$ to +40 $^\circ\text{C}$
(+15 $^\circ\text{F}$ to +105 $^\circ\text{F}$)
- Humidity: 20% to 90% RH non-condensing
- Vibration: IEC 1283: 2g, 15min., 10 to 33 Hz
- Shock: 1.5 m (5') drop on each surface onto concrete
- EMI/EMC: Exceeds MIL STD 461D RS103

*Manufactured by Thermo Fisher Scientific

Status: Jan2009