

The EPD<sup>®</sup> Mk2 combines unequalled radiological performance with advanced software and hardware features.

## EPD<sup>®</sup> Mk2 Electronic Personal Dosimeter

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



The EPD<sup>®</sup> 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

# System Specifications

## Radiological

- Sensitive to X and  $\mu$  radiation,  $\beta$  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  $\mu$ Sv to >16 Sv (0 mrem to >1600 rem) auto ranging
- Resolution for display 1  $\mu$ Sv (0.1 mrem), up to 10 mSv (1 rem)
- Resolution for storage 1/64  $\mu$ Sv (=1.5  $\mu$ rem)
- Dose rate display 0  $\mu$ 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.  $^{137}\text{Cs}$ )  
 $\pm 20\%$  17 keV to 15 MeV (ref.  $^{137}\text{Cs}$ )  
 $\pm 30\%$  15 MeV to 6 MeV (ref.  $^{137}\text{Cs}$ )  
 $\pm 50\%$  6 MeV to 10 MeV (ref.  $^{137}\text{Cs}$ )

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

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

- Angular response:

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

- Accuracy

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

- Dose rate linearity:

$H_p(10)$   $^{137}\text{Cs}$   
 $\pm 10\%$  <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  $\mu$ Sv (0.1 mrem); will store up to 579 records for transitions up to 127  $\mu$ 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  $\mu$ Sv/chirp to 100  $\mu$ Sv/chirp (1  $\mu$ 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

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