

# Product Datasheet

# DMC 3000

## Personal Electronic Dosimeter

Mirion Technologies provides a complete line of hardware and software products targeted to Health Physics and Radiation Protection personnel, in order to meet current Nuclear Industry challenges. Covering a wide range of X-Ray and Gamma radiation detection, our DMC 3000 Electronic Dosimeter represents over 25 years of real-world electronic dosimetry experience, continually refined through customer feedback.

The unique, high contrast and backlit LCD display provides a clear indication of wearer's dose and ambient dose rate for deep dose equivalent. More importantly, multiple methods (audible, visual, and tactile) are utilized to alert the wearer of alarm conditions.

The DMC 3000 provides all of this protection, for over 2500 hours of continuous use, with a single AAA alkaline battery.

Best of all, couple with plug and play add-on modules the DMC 3000 offers detection and radio transmission capabilities beyond traditional use.



### Features

- Loud vibrating and dual ultrabright LED alarm.
- Highly visible backlit display.
- Simple 2-buttons navigation.
- Additional modules (Beta, Neutron, Telemetry and PRD).
- Superior X-ray and gamma energy response.
- Exceeds applicable IEC and ANSI standards.
- Excellent immunity to electromagnetic interference.
- Designed for ruggedness and durability.

The DMC 3000 offers an enhanced communication protocol for additional features and includes a compatibility mode for previous Mirion Technologies products including, Calibration tools, Access Control, Turnstiles and Telemetry infrastructure.

# Specifications

## Physical Characteristics

Compliant with IEC 61526Ed. 3, ANSI 42.20<sup>(1)</sup>, PTB approved

**Measurement and Display** X and gamma energy range: 15 keV to 7 MeV  
Energy response better than  $\pm 20\%$  (typically  $\pm 10\%$ ) from 16 keV to 7 MeV

**Accuracy (Hp(10))**  $\leq \pm 5\%$  (2) (Cs-137)  
 $\leq \pm 10\%$  (2) (X-ray 16keV and Am-241)

**Dose Rate Linearity**  $< \pm 20\%$  up to 10 Sv/h (1000 rem/h) (Co and X-rays 20 keV)  
 $< \pm 20\%$  up to 5 Sv/h (500 rem/h) (pulsed X-rays 1 ms to 10 s width, tested in accordance with IEC/TS 62743)

**Display** **Units:** mSv,  $\mu$ Sv, or mrem  
**Dose:** 0.1 or 1  $\mu$ Sv to 10 Sv (0.01 or 0.1 mrem to 1000 rem)  
**Rate:** 10  $\mu$ Sv/h to 10 Sv/h (1 mrem/h to 1000 rem/h) or 1  $\mu$ Sv/h to 10 Sv/h (0.1 mrem/h to 1000 rem/h) extended option

**Measurement Range** **Dose:** 1  $\mu$ Sv to 10 Sv (0.1 mrem to 1000 rem)  
**Rate:** 0.1  $\mu$ Sv/h to 20 Sv/h (0.01 mrem/h to 2000 rem/h)  
**Saturation Indication:** above 10 Sv (1000 rem) or 10 Sv/h (1000 rem/h)

## Electrical Characteristics

**Battery** Standard AAA (LR03) 1.5 V Alkaline

**Autonomy** 9 calendar month battery life (typical, 8 h per day, 5 days per week in run mode, without excessive alarms)<sup>(3)</sup>  
2500 h battery life in continuous run, without excessive alarm<sup>(3)</sup>

## Mechanical Characteristics

**Case** Rugged, high impact polycarbonate-ABS

**Dimensions** 87 x 60 x 21 mm max. without clip

**Weight**  $< 88$  g with alkaline battery and clip

**Replaceable Clips** 2 back clips and 1 front-facing clip

<sup>(1)</sup> isotropy Am-241 and Cs-137 with  $\pm 75^\circ$  angle.

<sup>(2)</sup> without extended uncertainty.

<sup>(3)</sup> 0.2% of the time in alarm.

<sup>(4)</sup> requires reader firmware/software upgrade.

Specifications are subject to change without notice.

For the most up-to-date specifications, please visit [www.mirion.com](http://www.mirion.com)

## Environmental Characteristics

**Temperature Range**  $-10^\circ\text{C}$  to  $50^\circ\text{C}$  ( $14^\circ\text{F}$  to  $122^\circ\text{F}$ )

**Relative Humidity**  $< 90\%$  at  $42^\circ\text{C}$  ( $108^\circ\text{F}$ )

**Storage**  $-20^\circ\text{C}$  to  $71^\circ\text{C}$  ( $-4^\circ\text{F}$  to  $160^\circ\text{F}$ )  
Shock, vibration and drop resistant (1.5 metre on concrete)

**Waterproof IP67** 1 m during 1 hour

**EMC** Complies and exceeds standards by a large margin (CE compliant, certificate number: 153720)  
MIL STD 461F RS103 (square wave modulation, electric field): exceeds 200 V/m from 10 kHz to 5 GHz  
MIL STD 461F RS101 (magnetic field)

**Factory Calibration** Approved under ISO/IEC 17025, COFRAC accreditation N° 2-1663

## Functional Features

**Display Features** Large LCD display with high quality white backlighting  
8 alpha-numeric digit display for full name display and fix dose/rate display format  
2 push buttons for an easy customised data and parameters display

**Alarm Features** **Audible and Tactile**  
Alarming speaker with level of 85 dB (A) typical ( $> 90$  dB (C) peak) at 30 cm, frequency  $< 4800$  Hz  
Vibrating alarm

**Visual**  
High efficiency red flash LED on front  
3 top LEDs for Alarming (Red), gamma counting (Green), and Hp (0.07) or Neutron counting (Blue)

**Customise**  
Adjustable dose and dose rate alarms  
Adjustable and acknowledgeable dose and dose rate warnings  
Configurable visual and audible alarm chirp  
Configurable latched dose rate alarm and warning  
Remaining time before alarm and run time alarms

**Histogram Features** Dose increments with a 1  $\mu$ Sv (0.1 mrem) resolution and dose rate saved on non volatile memory (EEPROM) in configurable steps (10 s, 60 s, 10 min, 1 hour, 24 hours)  
Event log (alarms, faults, changes) saved during the selected time periods  
Stores data for several consecutive workers entries and exits (more than 2500 steps)

**Communication** Hands-free communication, frequency: 125 kHz  
Backward compatibility with existing readers (LDM 2000...)  
Enhanced protocol to support additional features with the new readers (LDM 320D, LDM 320W, LDM 2000, LDM 3200<sup>(4)</sup>)

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