



MIRION
TECHNOLOGIES

Neutron Module $Hp(10)$

For the DMC 3000 Dosimeter



FEATURES

- Dose and dose rate Neutron $Hp(10)$ displayed
- Totalized dose for $Hp(10)$ Gamma + Neutron displayed
- Superior gamma rejection in Neutron channel
- Connect and ready for use
- Full Neutron energy range coverage
- Meets or exceeds applicable IEC and ANSI standards
- Designed for ruggedness and durability
- Excellent EMC Immunity
- Waterproof IP67

RELATED PRODUCTS

- Telemetry module, Beta module
- Readers: LDM 2000, LDM 3200, LDM 320D/W, LDM 1000
- Software: LDMAccess, DMCUser, DosiCare, DosiServ

DESCRIPTION

The Neutron Module provides operational dosimetry for Military, First Responders and radiation workers where there is a Neutron radiation risk.

The add-on Neutron Module attaches to the DMC 3000 dosimeter and is able to measure $Hp(10)$ radiation at a wide range of energy levels. The $Hp(10)$ Neutron measurements, display and alarms are highly visible on the DMC 3000's LEDs and high contrast backlit LCD display.

Powered by the DMC 3000, the add-on module does not require any supplementary battery and remains operational over 2400 hours in continuous use. Calibration and functional parameters are stored in the module.



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PHYSICAL CHARACTERISTICS

Hp(10) Measurement range (DMC 3000 + module)
Neutron energy range : 0.025 eV to 15 MeV
Dose Range, IEC 61526 Ed. 3 (Display & Measurement)
Hp(10) N
Effective Range of Dose: 2 μSv to 100 Sv (0.2 mrem to 10000 rem) Display Resolution: 0,1 μSv to 10 Sv (0.01 mrem to 1000 rem) up to four decimal places Overload Indication: from 10 Sv to >50 Sv (1000 rem to >5000 rem)
Dose Rate Range, IEC61526 Ed. 3 (Display & Measurement)
Hp(10) N
Effective Range of Dose Rate: 1 μSv/h to 10Sv/h (0.1 mrem/h to 1000 rem/h) Display Resolution: 100 μSv/h to 10 Sv/h (10 mrem/h to 1000 rem/h) up to three decimal places Overload Indication: from 10 Sv/h to >50 Sv/h (1000 rem/h to >5000 rem/h)
Accuracy Hp(0,07) Neutron
$\leq \pm 10\%$ (AmBe, 0.75 mSv/h, 75 mrem/h, target 1,3) - Hp(10) Typical Energy response from thermal to fast Neutron (see curve)
Hp(10) Dose Rate Linearity
$< \pm 20\%$ up to 10 Sv/h, 1000 rem/h

Display Neutron measurement Hp(10)



ELECTRICAL CHARACTERISTICS

- Powered by DMC 3000
- 10 calendar month battery life for Neutron module and DMC 3000 (typical, 8 h per day, 5 days per week in run mode, without excessive alarms)*
- 2400 h battery life for DMC 3000 with Neutron module and DMC 3000 in continuous run, without excessive alarms*
*0.2% of the time in alarm with Duracell industrial battery

MECHANICAL CHARACTERISTICS

- Rugged, high impact polycarbonate-ABS case
- Dimensions with DMC 3000:
131 x 60 x 21 mm (5.1 x 2.4 x 0.8 in) max. without clip
131 x 60 x 28mm (5.1 x 2.4 x 1.1 in) with standard clip
- Weight with DMC 3000: < 138 g (4.9 oz)
- Worn by a replaceable clip

ENVIRONMENTAL CHARACTERISTICS

- Temperature range:** -10°C to 50°C (14°F to 122°F)
- Storage:** -20°C to 71°C (-4°F to 160°F)
- Shock, vibration and drop resistant**
- IP67 protection:** 1 m (39 in) during 1 hour
- EMC:** complies and exceeds standards by a large margin (C€ compliant certificate number: DOC003215)
 - MIL STD 461-RS103 (pulsed electric field): exceeds 200 V/m from 10 kHz to 5 GHz
 - MIL STD 461-RS101 (magnetic field 30 Hz to 100 kHz)

PRODUCT CHARACTERISTICS

Histogram Features

- Additional Hp(10) Neutron measurement (dose, dose rate and maximum dose rate) saved on non volatile memory (EEPROM) at the same time as Hp(10) Gamma measurement in configurable steps (10 s, 60 s, 10 min, 1 hour, 24 hours)

Display Features

- Additional Hp(10) Neutron measurement displayed on DMC 3000 high quality white backlighting
- Blue top LED for Neutron dose increment indication

Alarm Features and Communication

- DMC 3000 alarming speaker, vibrator, high efficiency red flash LED, 3 top LEDs and display indicators
- Hp(10) Neutron dose/rate alarms, adjustable over the display range
- Hp(10) Neutron dose/rate warnings, adjustable over the display range and acknowledgeable

Calibration

- Factory calibration in accordance with ISO/IEC 17025
- Parameters saved into the module

Compatibility

- With all DMC 3000 (firmware upgrade needed if firmware lower than V7.x)

