Product Specifications

The Thermo Fisher Scientific EPD-N2 combines excellent photon dosimetry with full-spectrum neutron response, making this dosimeter ideal for those working in mixed neutron/gamma fields.

EPD™-N2

Electronic Personal Gamma-Neutron Dosimeter

Applications include:

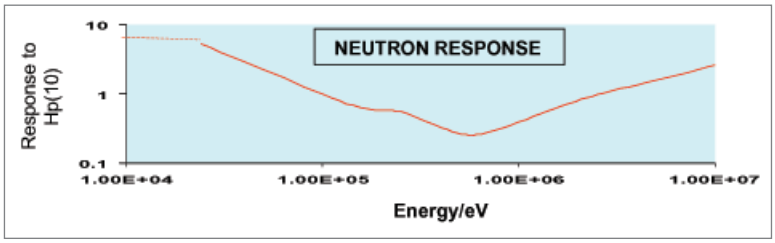
- Reactors
- Spent fuel and glass waste transport
- Reprocessing and plutonium finishing
- MOX - plants
- Neutron source manufacture
- Many types of nuclear and university research
- Accelerator facilities
- Medical facilities

- Advanced radiological performance, 20keV-10MeV (photon), thermal (0.025eV) - 15MeV (neutron)
- Excellent performance in mixed gamma/neutron fields
- Multi-detector technology
- Excellent performance for low-dose measurements
- Direct display of Hp(10) for neutrons and for photons
- Outstanding immunity to electromagnetic interference
- AA battery, lithium or alkaline, interchangeable
- Compatible with current or upgradeable Thermo Scientific EPD readers, software and accessories

EPD-N2 Specifications

Radiological

- Sensitive to X- and γ-radiation (E > 20keV) and neutrons 0,025eV < E < 15MeV
- Direct readout of Hp(10) for neutron & photon dose
- Multiple diode detectors with converters and energy compensation shields
- Display units: Sv & rem (with prefixes µ, m), set via internal software
- Generally in accordance with ANSI standards 13.11, 13.27 & 42.20 (photons performance) and most aspects of IEC 61525 (neutrons & photons)
- Dose display & storage: 0µSv to > 16Sv, auto-ranging
- Resolution for display: 1µSv (< 10mSv/1rem) (γ, and neutron under best conditions)
- Resolution for storage: 1/64µSv (~1.5µrem) (γ), 1µSv for neutron dose under best conditions
- Dose rate display: 0µSv/h to > 4Sv/h (400rem/h), auto-ranging, variable resolution



Electrical & Mechanical

- Power supply: 1 x AA battery, 1.5V alkaline or 3.6V lithium, interchangeable without any adjustment
- Operating life (see assumptions below)
  - Continuous use: 1.5V alkaline: typically 42 days
    3.6V lithium: 4.5 - 5 months
  - 8h/24 with use of 'OFF' standby state:
    1.5V alkaline: ~ 2.5 months
    3.6V lithium: ~ 9 months
  - Assumptions: average dose rate < 5µSv/h (<0.5mrem/h), IR communications < 5s, 2x/day, audible alarm sounding <2h total during battery life
- Communications: IR interface, < 1m range (39")
- Display and enabled functions controlled by button on front face of EPD (button recessed and sealed)
- Size: 86 x 63 x 18.5 mm, without clip, (approx 3.4 x 2.5 x .75")
- Weight:: 108 g (~4oz) incl. battery & clip
- Case material: high impact polycarbonate blend
- Clip: high impact plastic, easily renewed, strong clamp, with eyelets for lanyard (optional lanyard-only version)
- Energy response (γ): ± 20% 25keV to 1.5MeV
  ± 30% 20keV to 6MeV
  ± 50% 6MeV to 10MeV
- Energy response (n): see energy response curve above
  With a single calibration, the neutron dose estimated by the EPD-N2 will be within approximately ± 30% of the true value for many workplace fields
- Angular response: Hp(10) (γ) ± 20% up to ± 75° Cs-137
  Hp(10) (n) ± 30% up to ± 60° Am-Be
- Internal detector self -test under CPU control
- Accuracy: Hp(10) (γ) 10% Cs-137
  Hp(10) (n) 20% Am-Be

Alarms

- Audible & visual alarms: Photon dose rate (2), photon dose, combined photon + neutron dose, neutron dose rate, neutron dose, over-range, failure, count - down timer, low battery, 'return for read'. Alarm tone, pattern, sound level, mutability and red LED configurable via external software
- 'Beep' for gamma dose with configurable sensitivity
- Alarm sounder: sealed, typically 98-100 dB(A) @ 20cm on 4kHz 'loud'setting

Memory

- 10 year data retention without battery
- Short term and Total dose registers for Hp(10) γ & n
- Storage of peak photon & neutron dose rates, with date & time (1s resolution for all stored times)
- 23 most recent alarms or events stored with date & time
- Dose profile storage: ~ 500 dose data points for γ & neutron dose with date & time

Environmental

- Operating temperature: -10 °C to 40 °C (15 to 105 °F)
- Storage temperature: -25 °C to 70 °C (-13 to 158 °F)
- Humidity: 20% - 90% RH, non-condensing
- Protection rating: IP55 (protection against dust ingress & low pressure jets of water from all directions)
- Vibration: IEC 1283 (2 g, 15 min.,10-33 Hz)
- Shock: 1.5 m drop onto concrete on each surface
- EMI/EMC: Exceeds MIL STD 461D RS103; IEC 1283 & IEC 61525

Worldwide
Frauenauracher Strasse 96 +49 (0) 9131 909-0
D 91056 Erlangen, Germany +49 (0) 9131 909-205 fax

United Kingdom
Bath Road, Beenham, +44 (0) 118 971 2121
Reading RG7 5PR United Kingdom +44 (0) 118 971 2835 fax

United States +1 (508) 520-2815
27 Forge Parkway +1 (800) 274-4212 toll-free
Franklin, MA 02038 USA +1 (508) 428-3535 fax

www.thermo.com/rmp

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