

This product is available through:

JRT Associates

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Elmsford, NY 10523
800-221-0111

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:

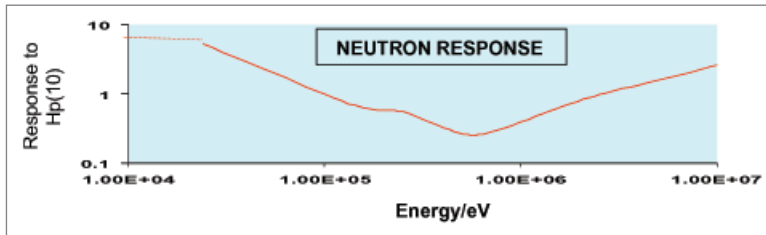
- Reactors
- Spent fuel and glass waste transport
- Reprocessing and plutonium finishing
- MOX - plants
- Neutron source manufacture
- Many types of nuclear and university research
- Accelerator facilities
- Medical facilities



- 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

Radiological

- Sensitive to X- and γ -radiation ($E > 20\text{keV}$) and neutrons $0,025\text{eV} < E < 15\text{MeV}$
- 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: $0\mu\text{Sv}$ to $> 16\text{Sv}$, auto-ranging
- Resolution for display: $1\mu\text{Sv}$ ($< 10\text{mSv}/1\text{rem}$) (γ , and neutron under best conditions)
- Resolution for storage: $1/64\mu\text{Sv}$ ($\sim 1.5\mu\text{rem}$) (γ), $1\mu\text{Sv}$ for neutron dose under best conditions
- Dose rate display: $0\mu\text{Sv}/\text{h}$ to $> 4\text{Sv}/\text{h}$ ($400\text{rem}/\text{h}$), 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 $< 5\mu\text{Sv}/\text{h}$ ($< 0.5\text{mrem}/\text{h}$), IR communications $< 5\text{s}$, 2x/day, audible alarm sounding $< 2\text{h}$ total during battery life
- Communications: IR interface, $< 1\text{m}$ range (39")
- Display and enabled functions controlled by button on front face of EPD (button recessed and sealed)
- Size: $86 \times 63 \times 18.5$ mm, without clip, (approx $3.4 \times 2.5 \times .75$ ")
- Weight: 108 g ($\sim 4\text{oz}$) incl. battery & clip
- Case material: high impact polycarbonate blend
- Clip: high impact plastic, easily renewed,

- Energy response (γ): strong clamp, with eyelets for lanyard (optional lanyard-only version) $\pm 20\%$ 25keV to 1.5MeV $\pm 30\%$ 20keV to 6MeV $\pm 50\%$ 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 $\pm 30\%$ of the true value for many workplace fields
- Angular response: Hp(10) (γ) $\pm 20\%$ up to $\pm 75^\circ$ Cs-137
Hp(10) (n) $\pm 30\%$ up to $\pm 60^\circ$ 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

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EPD 1 - Dosimeters

Line	Part Number	Description
1.		Electronic Personal Dosimeters - EPDs
2.		Note: EPDs ordered with a security battery cap require the security battery cap removal/installation tool part number EPD/2/42431/000
3.		Beta-Gamma EPDs
4.	EPD/1/62920/120	EPD Mk2+, Grey, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
5.		
6.		
7.		
8.	EPD/1/62920/220	EPD Mk2+, Green, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
9.		
10.		
11.		
12.	EPD/1/62920/320	EPD Mk2+, Blue, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
13.		
14.		
15.		
16.	EPD/1/62920/420	EPD Mk2+, Black, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
17.		
18.		
19.		
20.	EPD/1/62920/620	EPD Mk2+, Red, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
21.		
22.		
23.		
24.	EPD/1/62920/720	EPD Mk2+, Fluorescent Yellow, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
25.		
26.		
27.		
28.	EPD/1/62920/020	EPD Mk2+, Yellow, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
29.		
30.		

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EPD 1 - Dosimeters

Line	Part Number	Description
31.	EPD/1/62920/020	EPD Mk2+, Yellow, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
32.	EPD2GOLD	NIST Certified Golden EPD Mk2+ (Includes Two (2) Year Battelle Certification)
33.		Gamma-Only EPDs
34.	EPD/1/62930/120	EPD-G - Mk.2.5, Gamma-only Dosimeter, Grey, Lithium or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
35.		
36.		
37.		
38.		Gamma-Neutron EPDs
39.	EPD/1/62921/420	EPD-N2 - Mk.2.5, Gamma-Neutron Dosimeter, Black, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
40.		PTB-Approved EPDs
41.	EPD/1/62920/122	EPD Mk2+, PTB Beta-Gamma Dosimeter, Gray, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
42.	EPD/1/62930/122	EPD-G - Mk.2.5, PTB Gamma-Only Dosimeter, Gray, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
43.	EPD/1/62921/422	EPD-N2 - Mk.2.5, PTB Gamma-Neutron Dosimeter, Black, Lithium (default) or Alkaline AA Battery, Alligator Clip and Security or Coin Battery Cap (default).
44.		Dosimetry Solutions Kits
45.	EPD/1/62901/050	Dosimetry Solution - Beta-Gamma - Red. EPD Kit consisting of five Red EPD Mk2+ dosimeters, IrDA reader with USB interface, EasyEPD2 and EasyIssue software. EPDs provided with alligator belt clip, lithium battery and coin battery cap unless otherwise spe
46.	EPD/1/62901/051	Dosimetry Solution - Beta-Gamma - Gray. EPD Kit consisting of five Gray EPD Mk2+ dosimeters, IrDA reader with USB interface, EasyEPD2 and EasyIssue software. EPDs provided with alligator belt clip, lithium battery and coin battery cap unless otherwise s
47.	EPD/1/62901/055	Dosimetry Solution - Beta-Gamma - Gray. EPD Kit consisting of ten Gray EPD Mk2+ dosimeters, IrDA reader with USB interface, EasyEPD2 and EasyIssue software. EPDs provided with alligator belt clip, lithium battery and coin battery cap unless otherwise sp
48.	EPD/1/62901/052	Dosimetry Solution - Gamma-only. EPD Kit consisting of five Gray EPD-G - Mk.2.5 dosimeters, IrDA reader with USB interface, EasyEPD2 and EasyIssue software. EPDs provided with alligator belt clip, lithium battery and coin battery cap unless otherwise sp
49.	EPD/1/62901/056	Dosimetry Solution - Gamma-Neutron. EPD Kit consisting of five Gray EPD-N2 - Mk.2.5 dosimeters, IrDA reader with USB interface, EasyEPD2 and EasyIssue software. EPDs provided with alligator belt clip, lithium battery and coin battery cap unless otherwis
50.		Extended Service Plans
51.	EPD-MK2-DS3	3 Year Extended Depot Service Warranty for EPD Mk2+

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EPD 1 - Dosimeters

Line	Part Number	Description
52.	EPD-N2-DS3	3 Year Extended Depot Service Warranty for EPD-N2

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EPD 4 - Accessories

Line	Part Number	Description
1.		EPD Accessories
2.	EPD/2/42431/001	Coin Battery Cap Removal/Installation Tool
3.	EPD/2/42431/000	Security Battery Cap Removal/Installation Tool
4.	EPD/1/70535/000	EPD Mk.2 External Alarm Module *Larger, brighter LED, audio ear input and vibrating alarm). Includes brass fitting with LED connection.
5.	EPD/1/70536/100	Eye Piece for External Alarm Module
6.	EPD/1/70536/200	Strobe Arm Band for External Alarm Module
7.	EPD/1/70536/300	Wrist Band w/vibe motor for External Alarm Module
8.	EPD/1/70537/100	Clear Waterproof Case for EPD Mk2
9.	EPD00026	Desantis case for the EPD Mk2
10.	EPD/1/70549/000	EPD Mk.2, External Power Adapter 3 to 12 VDC

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EPD 5 - Components

Line	Part Number	Description
1.	EPD/1/62275/000	EPD Mk.2 Acoustic Earpiece with Ear Hook
2.	EPD/1/62275/100	EPD Mk.2 Acoustic Earpiece without Ear Hook
3.	EPD/1/31540/000	WR-1 Wall Rack for EPD Mk.2, holds 10 EPD's
4.	EPD/1/31523/000	TPB-1 Transport Box for EPD Mk.2
5.	EPD/2/31524/000	SST-1 Black Storage Tray for EPD Mk.2, holds 16 EPDs
6.	T18/4/44170/008	Lithium AA Battery for EPD Mk.2