NetDose BGN Dosimeter

Connected beta, gamma, and neutron dose monitoring for mission-critical radiation programs

The Thermo Scientific™ NetDose™ BGN Dosimeter is a compact, wearable radiation monitoring device built for personnel working in environments where beta, gamma, and neutron radiation may all be present. Rather than requiring separate devices for different radiation types, it brings those capabilities together in a single platform. For organizations that depend on accurate dose records and efficient radiation safety programs, it enables exposure data capture while streamlining day-to-day tasks involved in badge management and reporting.



Designed for occupational radiation protection programs, defense organizations, nuclear facilities, shipyards, emergency response teams, and industrial radiation users, NetDose BGN combines advanced detector technology, secure wireless communication, on-board data storage, and intuitive user interaction in a single wearable platform.



Purpose-built for complex radiation environments

Radiation work rarely happens under ideal conditions. In many facilities, workers may move between areas where different radiation types are present, or where the exact radiation field is not fully characterized before work begins. A single dosimeter capable of monitoring beta, gamma, and neutron radiation can help reduce the need for multiple devices while making it easier to manage dose records.

The system supports personnel monitoring programs where accurate, repeatable, and timely dose information is required. Its connected architecture enables dose data to be transmitted through a secure wireless gateway, mobile application, or web-based user interface, reducing reliance on manual collection and supporting more efficient radiation dose monitoring operations and timely access to exposure information.

Operational advantages

Dose information when it's needed

Traditional dosimetry programs often involve waiting until badges are collected and processed before reviewing exposure data. NetDose BGN supports both scheduled and on-demand dose readings, allowing radiation safety personnel to check worker exposure during ongoing operations rather than after the fact. The added visibility helps teams recognize changing conditions sooner and respond before exposures become more significant.

Connected badge management

Managing hundreds—or even thousands—of personnel badges can become a logistical challenge. NetDose is designed to centralize many of those administrative tasks, including badge assignment, dose review, reporting, and reassignment. By connecting dosimeters directly to a digital management platform, organizations can reduce manual recordkeeping and gain a clearer view of radiation monitoring activities across multiple facilities or work sites.

Designed for everyday use

Because a dosimeter is only useful if workers consistently wear it, the physical design matters. NetDose BGN is compact and lightweight, making it practical for routine use during normal work shifts. LED indicators, simple push-button controls, and replaceable batteries keep operation straightforward, which may reduce the amount of user training required for day-to-day deployment.

Preserving data between connections

Not every work location has continuous wireless connectivity. Workers may spend hours inside containment areas, underground spaces, or remote facilities where communication is limited. To address this, the dosimeter stores dose history internally until it reconnects with the system, helping preserve exposure records if data cannot be transmitted immediately.

Intended for regulated radiation programs

Organizations operating under regulatory oversight often need more than basic dose measurements. They also require documented performance, traceable calibration, and compliance with established quality standards.

NetDose BGN is designed to meet the requirements of regulated radiation monitoring programs, providing reliable performance and traceable dose-of-record measurement. Key technical specifications and applicable standards are provided in the Specifications table for easy reference.

System components

NetDose BGN is designed as part of a connected radiation monitoring ecosystem rather than as a standalone device.

NetDose BGN Dosimeter

Empowers personnel to monitor their exposure to beta, gamma, and neutron radiation during routine operations with this wearable dosimeter.

Gateway / router (optional)

Transmits data from the dosimeter using Bluetooth™ Low Energy (BLE) and transparently forward that information via the gateway/router to the connected software platform.

Mobile application and web interface

Provides authorized users with access to dose information, device status, configuration settings, reporting tools, and other functions that support radiation safety operations.

Program administration tools

Supports enterprise-level management tasks such as badge reassignment, user and device administration, dose review, and reporting. For organizations with large monitoring programs, these capabilities may help simplify oversight while improving consistency across multiple locations.

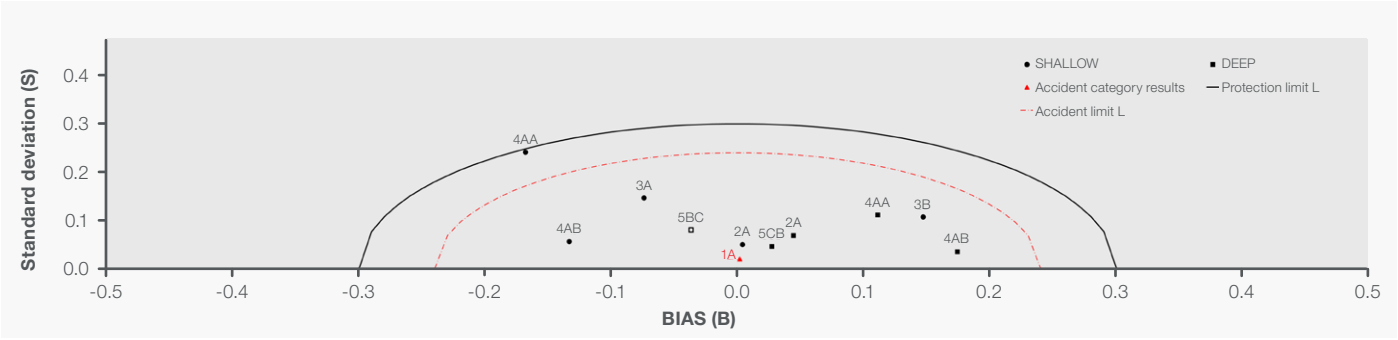
Upgrade to the NetDose BGN dosimeter for a secure, efficient, and user-friendly radiation monitoring experience.

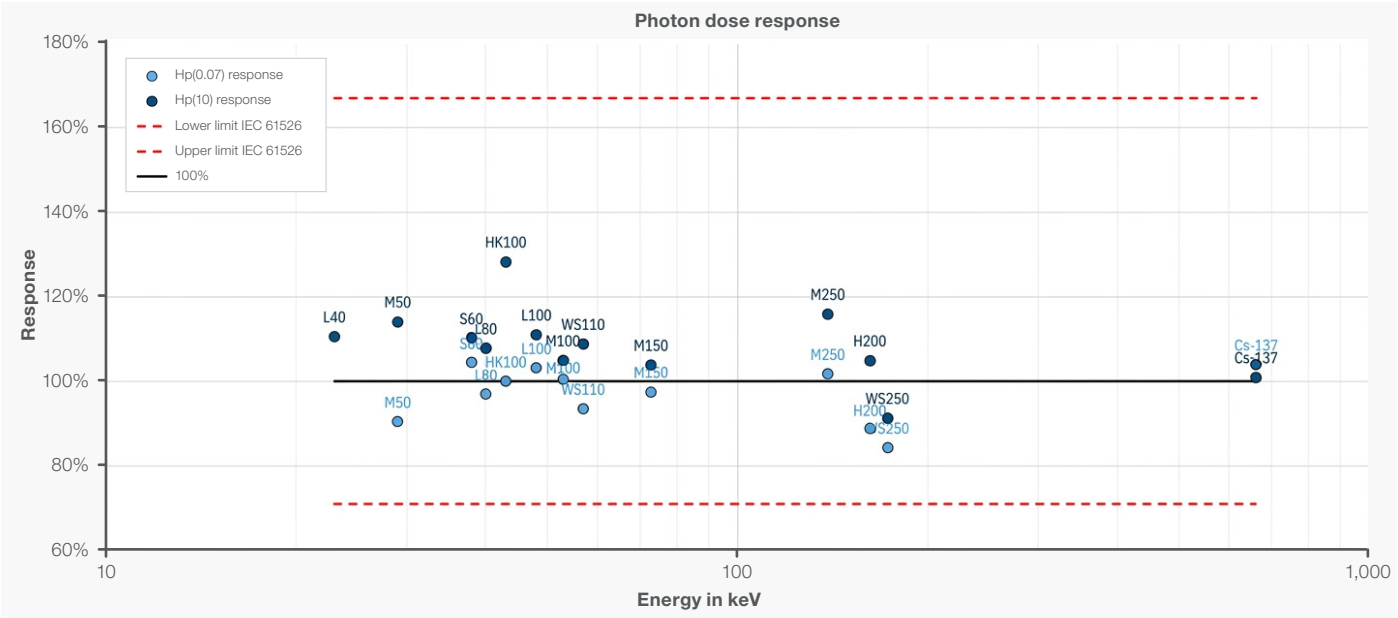


NetDose BGN Dosimeter	
Specification	**Details**
Communication interface	BLE 5.1
Data transmission	Scheduled or user-initiated transmission
LEDs	Separate LED indicators in green, blue, and red for signaling device health and data transmission statuses
Battery options	2 each AA size: • Alkaline • $LiSoCl_2$ • NiMH-rechargeable
Battery life	390 days (two TADIRAN SL-760 batteries) at background radiation levels
History storage size	Regular history: 500 datasets (daily dose) Detailed history: 4500 datasets (datasets refer to minutes, days, etc. that user will specify)
Device size	3.52 in × 2.55 in × 1.18 in (89.40 mm x 64.80 mm x 30.00 mm) (incl. clip)
Device weight	• 146 g (with TADIRAN SL-760 batteries) (LTC and clip) • 142 g (with Energizer L91 li-1488 batteries) (LIDS and clip) • 182 g (with alkaline varta industrial pro LR6 batteries) (All attachments)
Ingress protection	Rated to IP67: • Dust-tight, immersion in water up to 1 meter for 30 minutes
Temperature range	–35 ºC to +65 ºC
Relative humidity	10–95% (non-condensing)
Standards	• ANSI/HPS N13.11, IEC 61526, IEC 62387, ISO/IEC 17025 • MIL-STD-810H, Method 512.6 (Immersion) • MIL-STD-461G RS101 / RS103 (EMI) • MIL-STD-464D (Electromagnetic environmental effects) • HERO (Hazards of electromagnetic radiation to ordnance) • MIL-STD-810H, method 509.7 (Salt fog)
Attachment options	Clip (included), belt loop, lanyard (optional)
Motion detection	3D acceleration sensor
Pulsed radiation measurement	Detector technology and proprietary algorithms distinguish between pulsed and continuous radiation

NetDose BGN radiological performance			
	Gamma	**Beta**	**Neutron**
Energy range	20 keV – 7 MeV	70keV–935keV	0.025 eV–20 MeV
Minimum reportable dose	Hp(0.07): 0.01 rem; Hp(10): 0.01 rem	Hp(0.07): 0.01 rem	Hp(10): 0.02 rem
Energy response derived from NVLAP performance quotient	100 ±15% shallow, 105 ±15% deep	115 ±20% for Sr-90	105 ±20% for Cf-252
Dose measurement range/ detection range	Hp(0.07): 0.01–10 rem; Hp(10): 0.01–10 rem	Hp(0.07): 0.01–10 rem; Hp(10): 0.01–10 rem	Hp(10): 0.02–10 rem

NetDose gateway		
Feature	**Specification**	
External interfaces	Ethernet	1x 10/100 Mbit/s and 1x 10/100/1000 Mbit/s with IEEE 1588
	USB	1x USB 2.0 Host
Wi-Fi	Wi-Fi standard	802.11ac with 2 x 2 MU-MIMO
	Radio	Marvell 88W8997
	Security standards	WEP, WPA, WPA2, EAP-FAST, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-TLS*, EAP-TTLS*
		*Note: Available with Linux software version only
Physical	Dimensions	3.35 in × 0.87 in × 3.94 in
		(85 mm x 22 mm 100 mm) (without antennas or mounting brackets)
Electrical	Input voltage	9–30 VDC (AC power adapters available)
Environmental	Relative humidity	0–95% Non-condensing





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