D3S ID

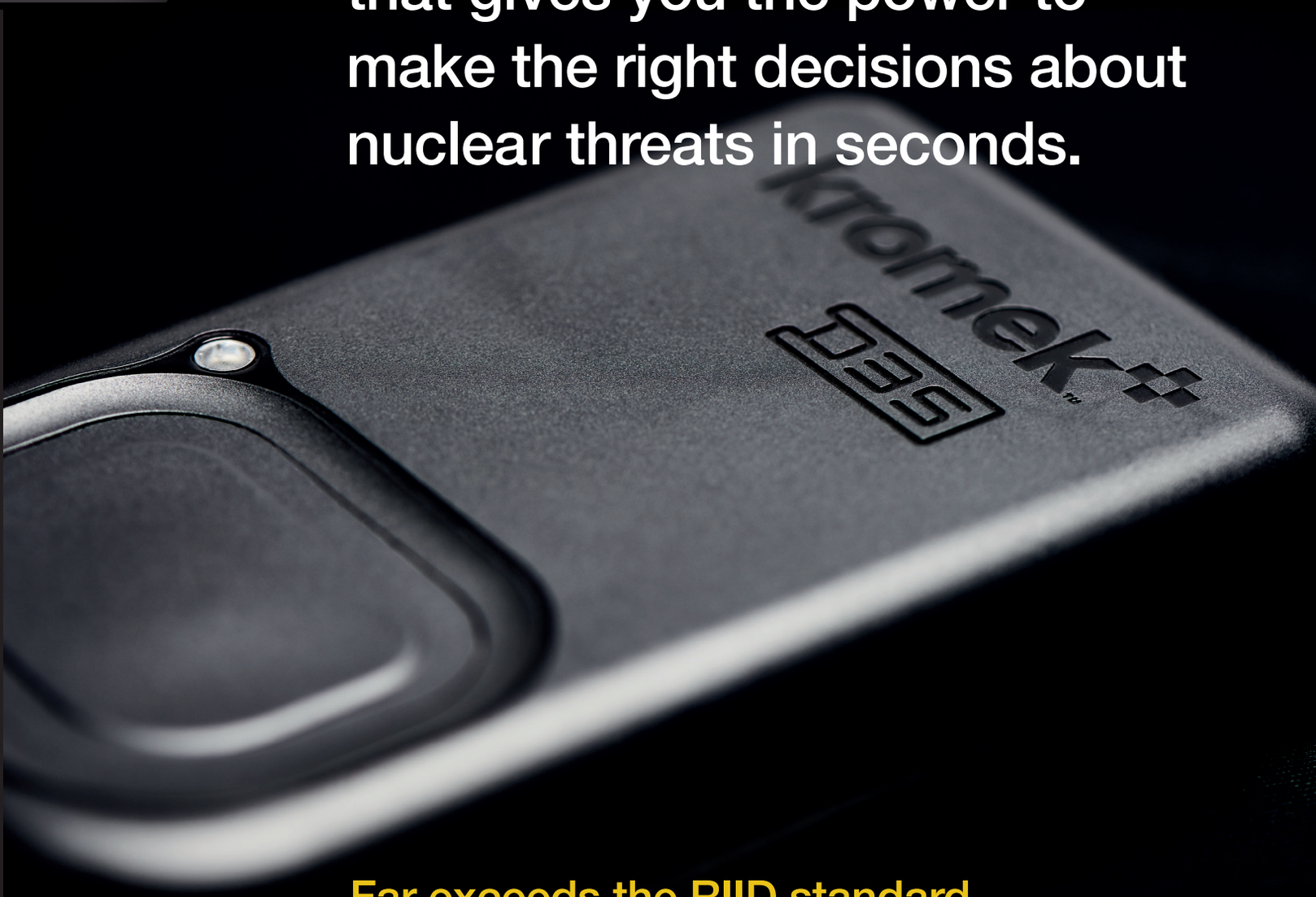
The wearable RIID™

**Light on your belt,
light on your budget**

kromek®
detect image identify

The power to perform

D3S ID, the wearable RIID that gives you the power to make the right decisions about nuclear threats in seconds.



Far exceeds the RIID standard. Identifies 17 extra isotopes, 4 times faster.

- 10,000+ detectors shipped worldwide
- 3bn+ spectra
- Lightweight design, heavyweight performance

RIID: Radioisotope Identification Device. **PRD:** Personal Radiation Detector

Ready to act

D3S ID is the wearable RIID, that's always on and built around your operational needs. It's the game-changing device that's revolutionising in-field isotope identification.

Thankfully radiation emergencies are rare, but you can never be complacent. You need to be on your guard every day and ready to act at any time.

That's where the D3S ID comes in. A discreet Radioisotope Identification Device with a difference.

The D3S ID from Kromek is the high-speed 'wearable RIID' which gives you the power to make informed decisions about nuclear threats in seconds.

What's different?

With the D3S ID, you get all the performance of a RIID in a small but powerful device the size of a PRD.

It's discreet, wearable and a fraction of the price of other much larger RIIDs, meaning it's not only light on your belt, it's light on your budget.

It's small, but powerful. At just five inches tall (that's smaller than your average Smartphone) it will easily help detect even very low levels of radiation rapidly, even if they pose no significant risk.

The D3S ID is always-on, always scanning in the background and its 12 hour battery life means it keeps working your whole shift long.

What do I get?

The D3S ID device is delivered ready-to-go and empowers all users to make more informed decisions.

It's a powerful combination of two of Kromek's leading technologies; the non-^{3}He compact thermal neutron detector and its world leading gamma detector.

The detection algorithm provides substantial enhancements in the detection and identification of low activity shielded threats, masked threats and nuisance isotopes. It has been extensively tested and characterised in multiple DNDO and DARPA programs.

There is a simple user interface with both visual and audio status updates and notifications. The D3S ID will also keep track of your count, detection and ID history.

The best bit? You can use it discreetly. No one will realise you're using the D3S because it works via a Smartphone Android app which transforms it into a highly capable RIID in seconds, either via Bluetooth or USB.

It's designed for in-field deployment, helping you monitor your immediate surroundings for up to 12 hours at a time.

Helping you to:

- Assess the situation
- Manage risk
- Make informed decisions within seconds

Content includes:

Manuals
D3S ID
Smartphone
Chargers

Optional extra:
Wearable
Carry Pouch

Why do I need it?

Every day brings new challenges and potential threats. To do your job safely and effectively, you need to be ready to act and empowered to make important decisions.

When a threat is found, you'll be alerted to it. With the D3S ID, you can assess the situation immediately and discreetly, within seconds make an informed decision.

Whatever the situation, you can get on with the job at hand, in the knowledge that the D3S ID is always on.

Who's it for?

The D3S ID is designed specifically for use by anyone, specialists and non-specialists alike.

It can be used by staff across a wide variety of sectors, including customs and border patrols, police, first-responders, at airports, event security and with environmental monitoring.

Is it easy to use?

The D3S ID is quick, simple and intuitive to use. With no need for specialist knowledge, anyone can be easily trained to use the system.

How do I report back?

The D3S ID's simple user interface means results can be reported back discreetly and instantly via email using the share function on the Android app.

What happens if I detect a problem?

The D3S ID is one of the fastest and most accurate isotope ID devices on the market which will help you carry out wide area searches. The device has a low false alarm rate for both wearable search and high sensitivity identification confirmation mode functions.

There is a three-second rolling average to detect and identify sources of radiation. As well as a rapid, visible, audible and tactile alarm setting, it will classify and categorise industrial, medical, NORM and SNM situations to empower you take the appropriate action.

Who's using it?

The D3S ID has been extensively tested and characterised and used in the field via the DARPA Sigma Program. So far more than 10,000 have been shipped worldwide and more than 3bn+ data points acquired.

Specification

D3S ID Isotope Library and Performance

- Library far exceeds ANSI and international standards
- 37 isotopes – 17 more than ANSI N42.34 standard
- Discriminates between Medical, NORM, Industrial and SNM classes
- 69 unique signatures which accounts for shielding and mixed configurations
- Identifies X-ray signature to eliminate nuisance alarm within airport environment

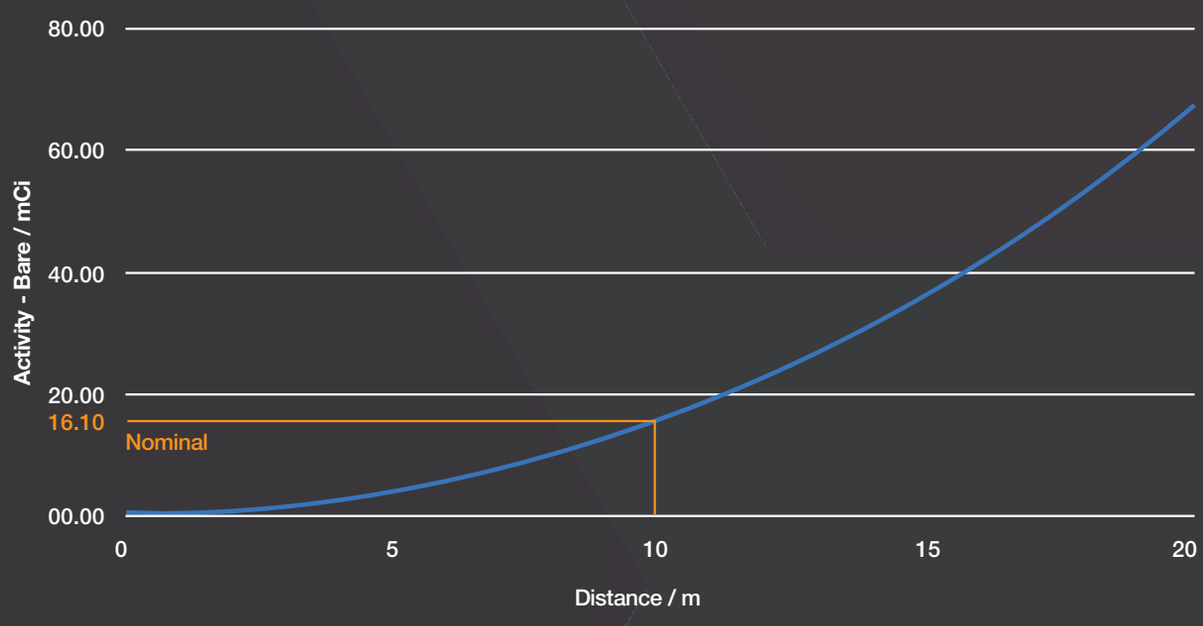
Notes:
*Mandatory radionuclides as defined in ANSI N42.34

**Beta+ emitting radionuclide

***Beta-emitting radionuclide

Americium-241*	Indium-111	Scandium-46
Antimony-124	Iodine-123	Selenium-75
Barium-133*	Iodine-131*	Sodium-22
Bromine-82	Iridium-192 in various shielding*	Strontium-90***
Caesium-134	Lutetium-177	Technetium-99m*
Caesium-137 in various shielding*	Manganese-54	Thallium-201*
Chromium-51	Molybdenum-99	Thorium-232*
Cobalt-57*	Neptunium-237	Tin-113
Cobalt-60 in various shielding*	Palladium-109	Uranium, depleted in various shielding*
Europium-152	Plutonium, reactor grade in various shielding*	Uranium, highly enriched in various shielding*
Fluorine-18**	Plutonium, weapons grade in various shielding*	Yttrium-88
Gallium-67*	Potassium-40*	
Gold-198	Radium-226*	

Detection variation with distance for Caesium-137 at 50 µR/h (0.5 µSv/h) (Meets ANSI 42.34)



Performance

- Detection ID probability ≥ 90% at 12+ meters against nominal source activities
- Demonstrated ability to identify weak threats masked by high-level background radiation
- Android app turns D3S into a highly capable RIID
  - Near real-time ID with high accuracy (1 Hz update rate)
  - Discrimination between Medical, NORM, SNM, Industrial
  - Wearable, wide area search mode gives a low false alarm rate that exceeds the performance of current instruments for search
- Identification confirmation mode out performs the false alarm rate of conventional RIID instruments

Detector specification

Detector type	Gamma and Neutron detection
Gamma detector material	CsI(Tl)
Gamma detector volume	1 in^3 (16 cm^3)
Gamma energy range	30 keV to 3 MeV
Gamma sensitivity for Cs137	5 cps/µR/h (500 cps/µSv/h) Photo peak 1.2 cps/µR/h (120 cps/µSv/h)
Maximum throughput for gamma channel	10,000 cps
Dose rate	2.0 mR/h (20 µSv/h) at 662 keV
Neutron detector material	Non-^{3}He
Neutron detector	9 cps in a 1 neutron per cm^2 field
Neutron detector gamma rejection	Better than 10^{-7}, meets ANSI N42.34 section 6.7
Maximum throughput for neutron channel	5,000 cps
Communications	Micro USB, Bluetooth®
Operational battery life	12 hours
Operational temperature range	–20°C to 50°C, meets ANSI N42.32 section 7.1, section 7.2, section 7.5
Device size (excluding phone)	5.2" x 3.1" x 0.9" (132mm x 80mm x 23.5mm)
Device volume (excluding phone)	248 cm^3
Humidity	Up to 93% RH ANSI N42.32 section 7.3
Moisture/dust protection	IP53 as per ANSI N42.32 section 7.4
Weight	0.52 lbs (237 g)
Battery	1450mAh Lithium polymer
Charging	Charging via USB or inductive charging
External LED's	Visual detector status
Device status indicator	External LED

Hardware tested to ensure compliance with the following standards

Vibration	ANSI N42.32 section 9.1
ESD immunity	ANSI N42.32 section 8.1
Radiated emissions	ANSI N42.32 section 8.4
Drop test	ANSI N42.32 section 9.2
Impact (microphonics)	ANSI N42.32 section 9.3
Software	
Graphic user interface	Android Smartphone
Spectra storage	ANSI N42.42 compliant
Spectra sharing	Via email

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Portable

Discreet

Integrated

Precise

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