

Thermo Scientific Interceptor™

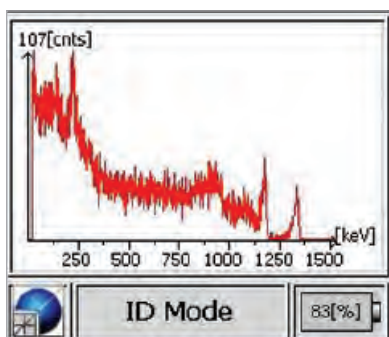
The next generation SPRD instrument for rapid detection and identification of radioactive materials

The state-of-the-art Thermo Scientific Interceptor™ is a Spectroscopic Personal Radiation Detector (SPRD) combining the qualities of a Personal Radiation Detector (PRD) with radio-isotope identifier capabilities (RIID). It offers superior sensitivity with on-the-spot, accurate identification at an affordable price and in a very compact size.



Features

- *Finds Faster:* Superior gamma and neutron sensitivity over other PRDs
- *Identifies Promptly and Accurately:* All-in-one instrument with greater identification accuracy to eliminate nuisance alarms quickly
- *Better Coverage:* PRD wearers can become RIID users as well with Rad ReachBack™ capability
- *Lower Cost of Ownership:* Low acquisition and operational costs through very rugged two-units-in-one instrument design



CZT performs well at higher energies; shown is a spectrum of 1 uCi of Co-60 counted for only four minutes

The Thermo Scientific Interceptor utilizes the science of isotopic identification, providing immediate identification and verification of rad materials quickly, at a time when public health and safety concerns are immediate.

Simple to Operate

The Interceptor is operated through three easy to use buttons: on/off on top, select, and execute on either side, with informative display prompts shown in the display header. The high-intensity status LED is visible from both the top and front of the unit with a large, bright, full-color display which can rotate 180° at the touch of a button for easy

viewing at any angle. The Interceptor also features a powerful loudspeaker for alarm tones, with a proportional vibrational alarm.

Effectively Communicates and Records Results

The Interceptor can be equipped with a Bluetooth wireless module and optional full reachback capabilities. It also allows event recording with optional built-in VGA resolution digital camera and built-in microphone and voice recorder. The 1 GB SD memory card facilitates secure storing of many thousands of events.

Available in Several Configurations

- Interceptor Gid: Advanced gamma finder with identification
- Interceptor GNid: Advanced gamma + neutron finder with identification

Full system offering includes scalable base stations for storage/charging/communication and web-based software.

Features & Benefits

- PRD/RIID capability all-in-one for greater versatility
- CZT finder and identification detectors for superior sensitivity and more accurate identification without sacrificing efficiency
- ³He neutron detector for high sensitivity to neutrons without gamma crosstalk
- Small and lightweight; can be worn safely and securely in a holster
- Easy-to-use, three-button operation; no PC required
- Top-view alarm indicator
- Optional digital camera, voice recorder to document suspicious objects
- Transmit info to third parties via optional Bluetooth communications
- Optional GPS module to add position information with each event
- Optional ReachBack capability to allow quick decision support by higher level authorities
- Low power technology for improved battery life
- Designed and manufactured in the USA.

Standard accessories (except where noted)



Holster

Interceptor™ Device

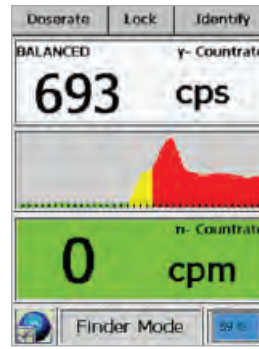
External Battery

Charger Connection

Charger

USB Cable

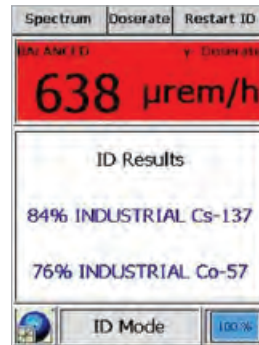
Software Package



Using finder to locate a source



Perform an identification



Obtain identification results



Record voice message to describe found object location and/or properties



Attach photo of found object

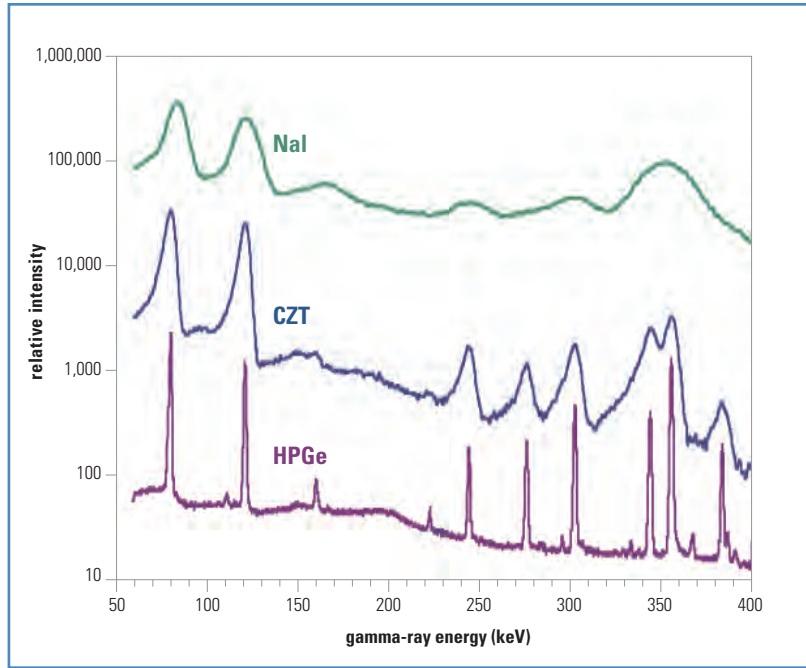
The data on the right shows the relative value of three commonly used detector technologies. Clearly the Interceptor, using Cadmium Zinc Telluride material (CZT), performs closely to HPGe, reducing the possibility of mis-identification of an isotope. CZT has unquestionable resolution benefits, demonstrated by the Comparison Spectra of Ba/Eu with the three most commonly used detector technologies. Without the superior resolution, important isotopes may be hidden. The Interceptor can see what is hidden among the NORM (Naturally Occurring Radiation Material).

Below are data on absolute efficiency of the Interceptor's spectrometer crystal.

The Interceptor spectrometer crystal possess absolute efficiencies that, combined with speed of identification of the isotope, are unmatched.

Other hand-held RIIDs use scintillation technology and constantly need to be energy optimized—either with a source or LED technology. This is due to the nature of scintillation technology which results in energy shifts due to ambient temperature changes. The Interceptor employs solid-state technology and therefore never suffers from temperature-related changes in calibration. The improved resolution and inherent detector stability make the Interceptor an excellent choice for field use for repeatable, accurate results in challenging real-world environments.

Comparison of NaI, CZT and HPGe detectors (Ba-133 & Eu-152)

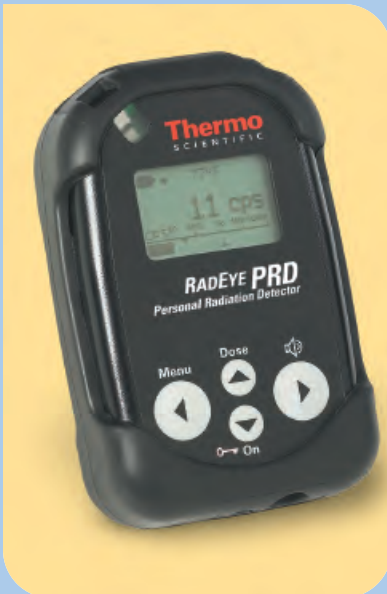


Absolute efficiency of the Interceptor spectrometer crystal

Identification Material	Percentage of Absolute Efficiency
Co-60 at 1333 keV	13%
Cs-137 at 662 keV	20%
Co-57 at 122 keV	95%
Am-241 at 59 keV	100%

The Interceptor is a perfect complement to other Thermo Scientific search-and-find instruments.

Thermo Scientific RadEye



Thermo Scientific PackEye



Thermo Scientific FH 40 NBR



Thermo Scientific Interceptor

General Specifications	
Dimensions	122 mm x 68 mm x 30 mm (4.8 in x 2.6 in x 1.2 in)
Weight	390 g (13.8 oz)
Finder Detectors	High-efficiency large volume CZT finder detectors
Resolution	7 mm x 7 mm x 3.5 mm (0.3 in x 0.3 in x 0.15 in) CZT identification detector
³ He Neutron Detection	8 atm., 13-mm diameter x 66 mm (0.5-in dia. x 2.6 in) at 1.2 cps/nv
Dose-rate	High-performance, 1024-channel DSP-based MCA with energy compensation dose-rate algorithm on finder detectors
Environmental Rating	Dust-tight and waterproof: to IP 60
Operating Temperature Range	-20°C to +50°C (-4°F to +122°F) at up to 95%RH @ 95°F
Communications	Supplied standard with USB communications port
EMC Hardening	Meets relevant ANSI & CE requirements
Batteries	Li-Ion rechargeable batteries and 4 x AA battery pack
Shock Protection	Can withstand up to a 1.5-m (5-ft) drop onto concrete
Energy Range	25 keV to 3 MeV
Sensitivity	1.5 cps/μR/h, 1.2 cps/nv
Configuration Options	Digital camera; Bluetooth; Low-pressure ³ He tube; GPS; ReackBack

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