# Product Datasheet

# H1600

## Gamma-Ray Imaging Spectrometer

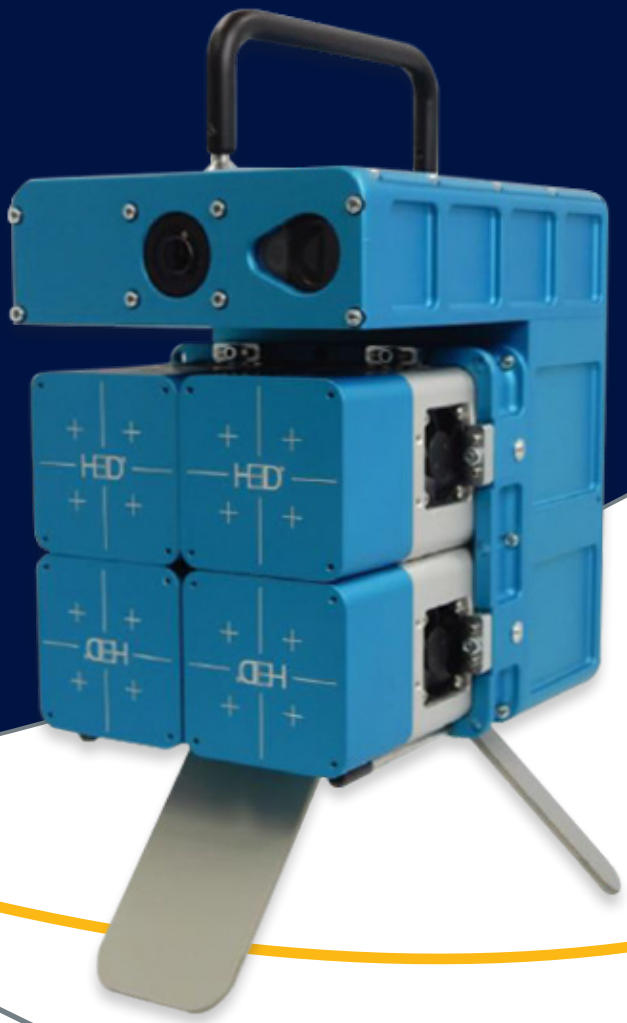
**The H1600 is H3D's highest efficiency, portable detector system. Detect, identify, and image even weak sources quickly and accurately with this user-friendly design.**

**The H1600 is ideal for applications in:**

- **Decommissioning.**
- **Active interrogation.**
- **Characterisation.**
- **Monitoring.**

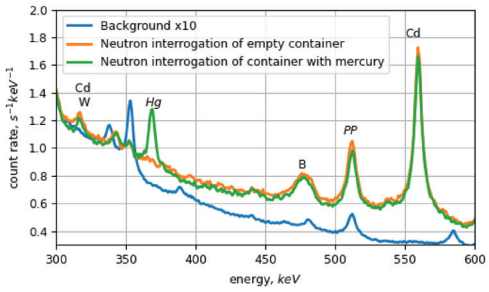
**Containing the most advanced room-temperature semiconductor technology to achieve spectroscopic performance competitive with cryogenically cooled detectors, the detector has:**

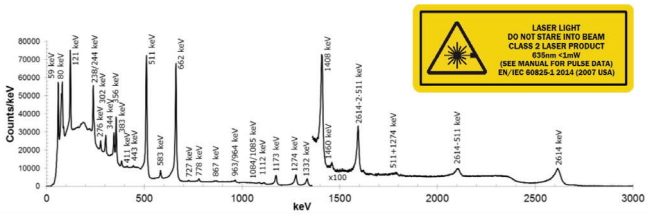
- **Compact and lightweight.**
- **Fast startup.**
- **Excellent energy resolution.**
- **Low power.**



### Features

- Highly efficient imaging spectrometer.
- Fast, portable, and easy to use.
- Rapidly identifies and locates weak gamma-ray sources.
- Real-time spectroscopy, ID, and imaging.
- Option for ≤0.8% FWHM energy resolution at 662 keV and interaction-by-interaction resolution of ≤0.65% FWHM.
- Energy range covers isotopes of interest up to 3 MeV.
- Ready to use in under 60 s.
- Unsurpassed efficiency with >77 $cm^3$ pixelated CZT.
- Precision overlay of gammaray and optical images.
- Images both point and distributed sources.
- Integrated rangefinder.
- Air/watertight for easy decontamination.
- Wireless, Ethernet, or USB communication.
- Cleanable for decontamination.
- All non-volatile memory accessible and removable outside detector compartment.
- Integrated tablet mount.
- Options for gamma-ray imaging from 50 keV to 3 MeV.
- Automatic report generation.
- Annual recalibration and software updates included.




www.**southernscientific**.co.uk

Southern Scientific
EXPERIENCE & EXPERTISE

# Specifications

| H1600 | |
|---|---|
| **Dimensions** (L x W x H) | 12.7 cm x 20.3 cm x 17.8 cm |
| **Weight** | 5.3 kg |
| **Ingress Protection** | IP67 |
| **Tripod Mount Add-on** | 1/4"-20 and 3/8"-16 |
| **Battery Life** | >6 hours at 23° C |
| **Power Input** | 100 - 240 V, 47 - 63 Hz |
| **System Cooling** | Cleanable heat sink and removable fans |
| **Startup and Operating Temperature** | -20° C to 50° C (-4° F to 122° F) |
| **Startup Time** | <60 s at 23° C (73° F) |
| **Energy Range** | 50 keV to 3 MeV (spectroscopy)<br>250 keV to 3 MeV (Compton imaging) |
| **Energy Resolution at 25° C** | ≥1.1% FWHM at 662 keV (coincident interactions combined)<br>≤0.9% FWHM at 662 keV (coincident interactions separated) |
| **Radiation Field of View** | 4 π (360°) omnidirectional (Compton imaging) |
| **Angular Precision** | ±1° source localisation for all 4π (real time) |
| **Angular Resolution** | ~30° FWHM for all 4π (real time; >250 keV)<br>~20° FWHM for all 4π (post processing; >250 keV) |
| **Sensitivity** | Detects 10-µCi $^{137}$Cs at 1 m (~3 µR/hr) in < 7 s (in natural background) |
| **Crystal Volume** | >77 cm$^3$ CZT (CdZnTe) |
| **Count-Rate Limit** | 1 rem/hr (10 mSv/hr) bare $^{137}$Cs equivalent |
| **Rangefinder** | Integrated Class 2 laser; 635 nm; <1 mW |
| **Optical Field of View** | >154° horizontal, >142° vertical; full colour Option for 100° horizontal, 85° vertical with better optical res. |
| **Optical Registration** | ±2° to radiation image in front 90° × 90° |
| **Isotope Library** | Select from 3573 ENDF isotopes and user defined; unlimited |
| **Display** | 8" 1280 x 800 HD tablet (mountable to back cover) |
| **Tablet Communication** | Peer-to-peer WiFi or Bluetooth, or wired connection) |
| **Other Communication** | Ethernet RJ45 port; TCP/IP |
| **Views** | Spectrum, gamma image, optical image, composite image |
| **Data Storage** | Removable USB (64 GB) included |
| **Warranty** | 2 years (includes annual recalibration and software updates) |
| **Includes** | Visualiser software for advanced post processing<br>Power/accessory cables, stylus, and tablet<br>Transport and storage case |

| Extra-High-Efficiency Option (H1600-15) | |
|---|---|
| **Crystal Volume** | Increase crystal volume to >116 cm$^3$. |
| **Resolution** | Also available as a higher-resolution H1600+-15 with no resolution guarantee. |

| High-Resolution Option (H1600+) | |
|---|---|
| **Energy Resolution** | Improve energy resolution to ≤0.8% FWHM at 662 keV (coincident interactions combined) and ≤0.65% FWHM at 662 keV (coincident interactions separated). |

| Quantification Option (H1600Q) |
|---|
| **Photopeak efficiency variation <1% across temperature range.** |

| Low-Energy-Imaging-Option (H610) | |
|---|---|
| **Enable imaging from 50 keV to 250 keV by adding coded aperture.** | |
| **Filed of View** | 86° × 86° |
| **Angular Resolution** | ~5° FWHM |

Any options can be combined, except as noted above.

Specifications are subject to change without notice.
For the most up-to-date specifications, please visit www.h3dgamma.com

**Southern Scientific Limited**
Scientific House, The Henfield Business Park
Shoreham Road, Henfield, BN5 9SL, UK
**E-mail:** info@southernscientific.co.uk
**Tel:** +44 (0)1273 497600
**www.southernscientific.co.uk**

LabLogic GROUP OF COMPANIES