

H420

Gamma-Ray Imaging Spectrometer

The H3D® H420 adds low energy imaging to the H400.

Localise X-rays and low-energy gamma rays.

The H420 is optimised for identification and localisation of all gamma-ray sources:

- Easy to use.
- Highly portable.
- Cost effective.

Use the H420 for:

- CBRNE interdiction.
- Source characterisation.
- Emergencies and incidents.

Spectroscopic performance competitive with cryogenically cooled detectors and source localisation at under 4 kg.

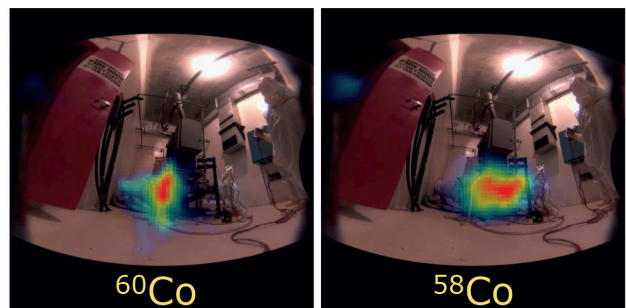
Features

- Fast, portable, and easy to use imaging spectrometer.
- Integrated rank-19 coded aperture mask.
- Automated mask/anti-mask capability for improved signal to noise and cleaner images.
- Rapidly identifies and locates sources of interest.
- Real-time spectroscopy, ID, and imaging.
- Omnidirectional sensing and imaging.
- Option for $\leq 0.8\%$ FWHM energy resolution at 662 keV.
- Energy range covers isotopes of interest up to 3 MeV.
- Industry-leading imaging sensitivity using pixelated CZT technology.
- Precision overlay of gamma-ray and optical images.
- Images both point and distributed sources.
- Ready to use in under 90 seconds.
- Discrimination between background and sources of interest in less than 20 seconds.
- Light weight and highly portable.
- Integrated range finder.
- Air/water tight for easy decontamination.
- Dose-range gauge.
- Automatic report generation.
- Annual recalibration and software updates included.

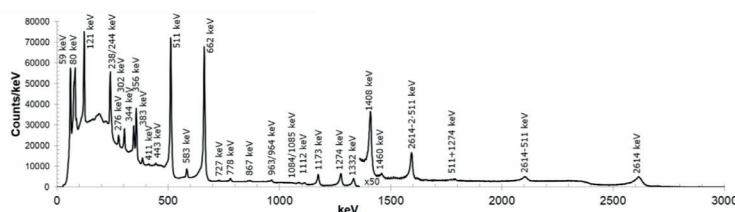


High-Resolution Option (H420+)

Improved energy resolution of $\leq 0.8\%$ FWHM at 662 keV (coincident interactions combined)



10-minute isotope-specific images of an RHR pump room in a US nuclear facility, using the H100



Specifications

Dimensions	24 cm x 9.5 cm x 18 cm
Weight	3.9 kg
Battery Life	>6 hours at 23° C (73° F) >2 hours at -20° C (-4° F) or 50° C (122° F)
Power Supply	100-240 V, 47-63 Hz
Start up and Operating Temperature	0° C to 50° C (-4° F to 122° F)
Storage Temperature	-20° C to 60° C (-4° F to 140° F)
Ingress Protection	IP65 (IP67 with fan replacement)
Tripod Mounts	1/4"-20 with reinforced thread 3/8"-16 (with add-on exoskeleton only)
System Cooling	Proprietary external heat sink and removable fan
User Service	Removable fan cover; replaceable fan and fuse
Range Finder	Integrated Class 2 laser; 635 nm; <1 mW
Energy Resolution	≤1.1% FWHM at 662 keV (coincident interactions combined)
Optical Field of View	>162° horizontal, >122° vertical; full color Option for 100° horizontal, 85° vertical with better optical res.
Optical Registration	±2° to radiation image in front 90° × 90°
Radiation Field of View	4π (360°) omnidirectional (Compton imaging) 86° × 86° (coded-aperture imaging)
Angular Precision	±1° source localisation for all 4π (real time)
Angular Resolution	~30° FWHM for all 4π (real time; >250 keV) ~20° FWHM for all 4π (post processing; >250 keV) ~5° FWHM in coded-aperture field of view (<450 keV)
Sensitivity	Detects ¹³⁷ Cs producing ~3 µR/hr in <16 s (spectroscopy) Localise point source of ¹³⁷ Cs producing ~3 µR/hr in <90 s

Energy Range	50 keV to 3 MeV (spectroscopy) 50 keV to 450 keV (coded-aperture imaging; optionally up to 3 MeV with lower efficiency) 250 keV to 3 MeV (Compton imaging)
Crystal Volume	>19 cm ³ CZT (CdZnTe)
Count Rate Limit	0.5 rem/hr (5 mSv/hr) bare ¹³⁷ Cs equivalent
Alarms	Audio and visual alarms based on dose rate or accumulated dose Silence independently and preemptively; adjustable threshold (Sv/h)
Isotope Library	Select from 3573 ENDF isotopes and user defined; unlimited
Start Up Time	< 90 s at 23° C (73° F)
Display	7" 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 (16 GB) included
Warranty	2 years (includes annual recalibration and software updates)
Includes	Visualiser software for advanced post processing Tablet-mounting bracket Power/accessory cables, stylus, and tablet Transport and storage case
Optional Add-Ons	Exoskeleton for drop protection External battery 4π (360°) omnidirectional camera

Specifications are subject to change without notice.
For the most up-to-date specifications, please visit www.hd3gamma.com



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