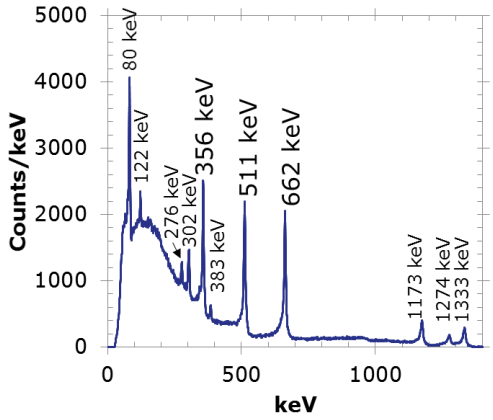
M400iC

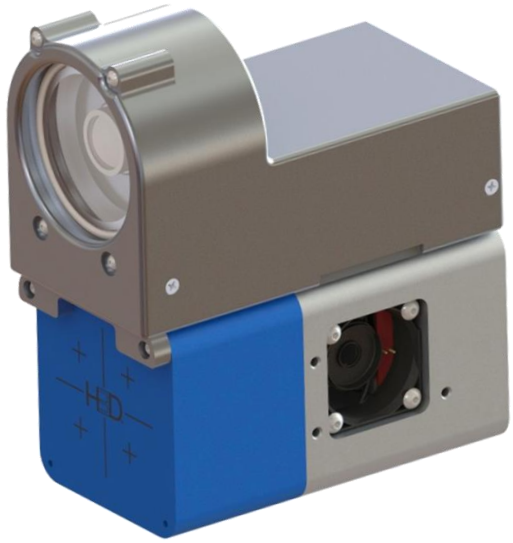
Integrable Imaging Spectrometer

Features

- ✓ Fast and highly portable spectrometer
- ✓ Gamma-ray imaging from 250 keV to 3 MeV
- ✓ Radiation image overlay onto optical image
- ✓ Option for ≤0.8% FWHM energy resolution at 662 keV and interaction-by-interaction resolution of ≤0.65% FWHM
- ✓ Ready to use in less than 90 s
- ✓ Rapidly identifies and localizes gamma-ray sources
- ✓ Industry-leading efficiency with up to >29 cm^3 pixelated CZT
- ✓ Real-time spectroscopy and imaging
- ✓ Discrimination between background and sources of interest in less than 20 s
- ✓ Factory-configurable rugged DB9 connection for power and control
- ✓ Wireless, Ethernet, or USB communication
- ✓ Cleanable for decontamination
- ✓ Web-based user interface and full API for control and data readout



Integrate H3D's detector module into your product. This solution contains everything you need for high-resolution spectroscopy and gamma-ray imaging.



Perfect for integration with:

- ❑ Drones
- ❑ Robots
- ❑ Other sensor suites

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

- ❑ Compact and light-weight size
- ❑ Fast startup
- ❑ Excellent energy resolution
- ❑ Integrated optical camera
- ❑ Low power
- ❑ Easy communication

Contact H3D to create a custom solution for your application.

The M400iC mounted on a drone.

The M400iC mounted on a drone

Extra-High-Efficiency Option (M400iC-15)

Increase crystal volume to >29 cm^3. Also available as a higher-resolution M400iC⁺-15 with no resolution guarantee.

Lower-Efficiency Options

M200iC

Crystal Volume:	>9.5 cm^3
Sensitivity:	Detect in <44 s
	Locate in < 180 s

M100iC

Crystal Volume:	>4.5 cm^3
Sensitivity:	Detect in <88 s
	Locate in < 360 s

High-Resolution Option (M400iC⁺)

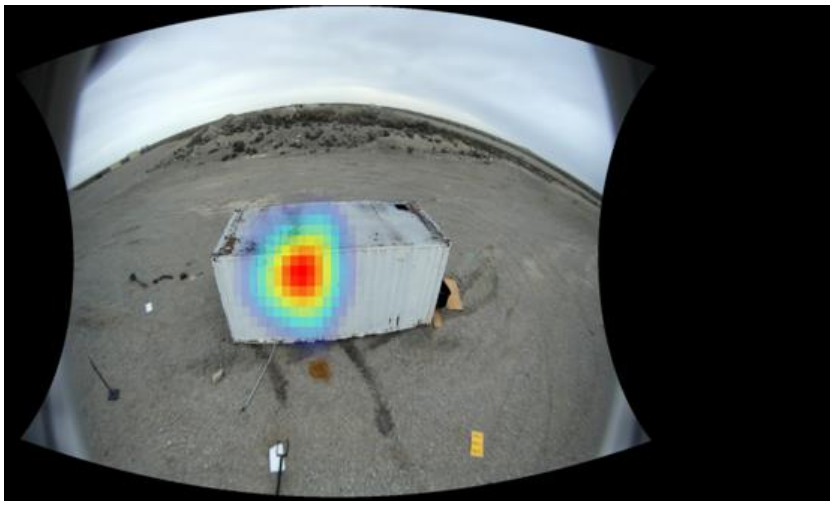
Improve energy resolution to ≤0.8% FWHM at 662 keV (coincident interactions combined) and ≤0.65% FWHM at 662 keV (coincident interactions separated)

Any options can be combined, except as noted.

Custom designs also available, including spectroscopy >3 MeV.

M400iC Base Specifications

Dimensions:	4.5 in x 2.25 in x 5.0 in (11.4 cm x 5.7 cm x 12.7 cm)
Weight:	2.2 lbs (1.0 kg)
Ingress Protection:	Designed to IP65
Power Input:	5 V, <9 W, through DB9 port
Startup & Operating Temp.:	-20° C to 50° C (-4° F to 122° F) with fan enabled -10° C to 35° C (14° F to 95° F) with fan disabled
Startup Time:	<90 s
Energy Resolution at 25° C (77° F):	≤1.1% FWHM at 662 keV (coincident interactions combined) ≤0.9% FWHM at 662 keV (coincident interactions separated)
Sensitivity:	Detects 10-µCi ^{137}Cs at 1 m (~3 µR/hr) in < 22 s (in natural background) Localize point source of ^{137}Cs producing ~3 µR/hr in <90 s
Spectroscopy Range:	50 keV to 3 MeV
Image Energy Range:	250 keV to 3 MeV
Optical Field of View:	>162° horizontal, >122° vertical; full color
Optical Registration:	±2° to radiation image in front 90° × 90°
Radiation Field of View:	4π (360°) omnidirectional
Angular Precision:	±1° source localization 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)
Crystal Volume:	>19 cm^3 CZT (CdZnTe)
Count-Rate Limit:	1 rem/hr (10 mSv/hr) bare-^{137}Cs equivalent
Maximum Event Rate:	150 kcps
Communication Options:	USB to computer Ethernet Wireless communication interfaces available
Data API Options:	Real-time spectrum Event total energy, each interaction energy, and time stamp Each interaction 3D position (x, y, z)



A radiation source in a cargo container, imaged with the M400iC mounted on a drone.

H3D®, Inc. • 812 Avis Drive • Ann Arbor, MI 48108 • USA
Tel +1 734-661-6416 • sales@h3dgamma.com • **www.h3dgamma.com**