

Features

- ✓ Rapidly identifies and quantifies isotopes of interest over time
- ✓ Practical high-performance gamma-ray spectrometer
- ✓ Option for $\leq 0.8\%$ FWHM energy resolution at 662 keV and interaction-by-interaction resolution of $\leq 0.65\%$ FWHM
- ✓ Compact and light weight
- ✓ Compatible with H3D dashboard trends software
- ✓ No cryogenic cooling required
- ✓ Wireless connectivity
- ✓ Pull data using wireless tablet or Ethernet network
- ✓ Stores >6 months of data
- ✓ Start up in less than 60 s
- ✓ Industry-leading efficiency with up to $>19 \text{ cm}^3$ pixelated CZT
- ✓ Air/water tight for easy decontamination
- ✓ Operates in high dose rates
- ✓ Dose-range gauge
- ✓ Backup-power battery
- ✓ Software upgrades included
- ✓ Annual recalibration and software updates included

Track real-time isotopic trends in industrial environments with the H3D® S100. The S100 is perfectly designed for short- or long-term monitoring.

- ☐ Compact
- ☐ Easy communication
- ☐ Cost effective



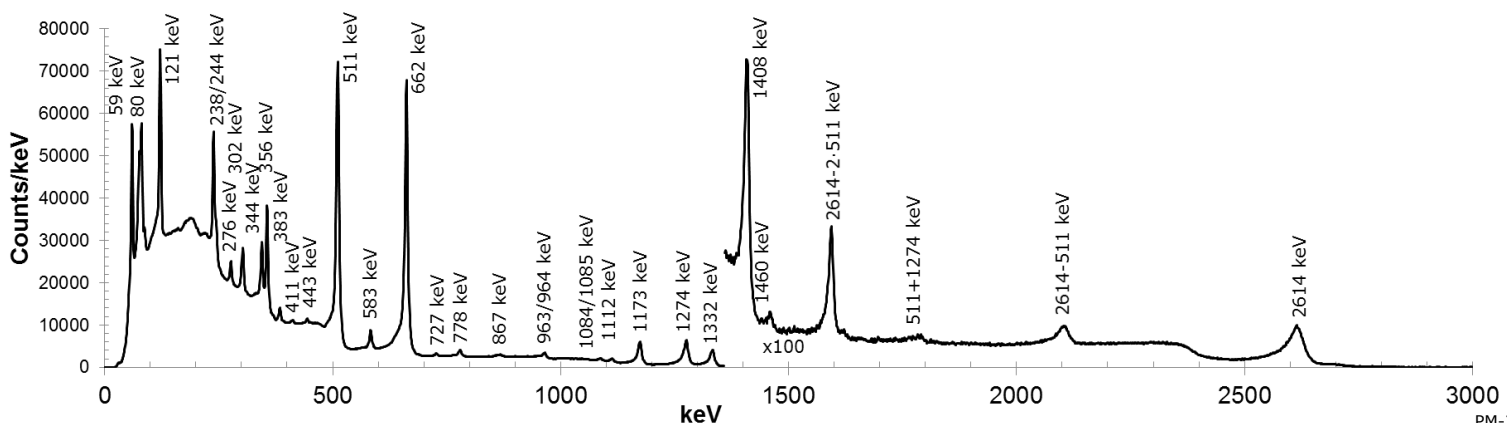
25 years of development and 10+ years of application-specific engineering to the exacting standards of nuclear power plant operators to support:

- ☐ Isotopic characterization of pipes and valves
- ☐ Isotopic trend analysis
- ☐ Outage monitoring

Spectroscopic performance competitive with cryogenically cooled detectors ... at under 6 lbs.

“S100 reduced outage costs. Key radionuclide concentrations in the Reactor Coolant System can now be monitored in real time, affecting radiation exposure throughout the outage. This will change how forced oxidation is monitored throughout the industry and provide more data for source-term reduction.”

- Brad Boyer, Radiation Protection Manager, Prairie Island Nuclear Generating Station





Any options can be combined, except as noted.

High-Efficiency Option (S400)

Add additional CZT volume:
Weight: 5.4 lbs (2.5 kg)
Sensitivity: Detects ^{137}Cs producing $\sim 3 \mu\text{R/hr}$ in $<15 \text{ s}$
Crystal Volume: $>19 \text{ cm}^3$ CZT

High-Resolution Option (S100+, S400+)

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

High-Dynamic-Range Option (S100x, S400x)

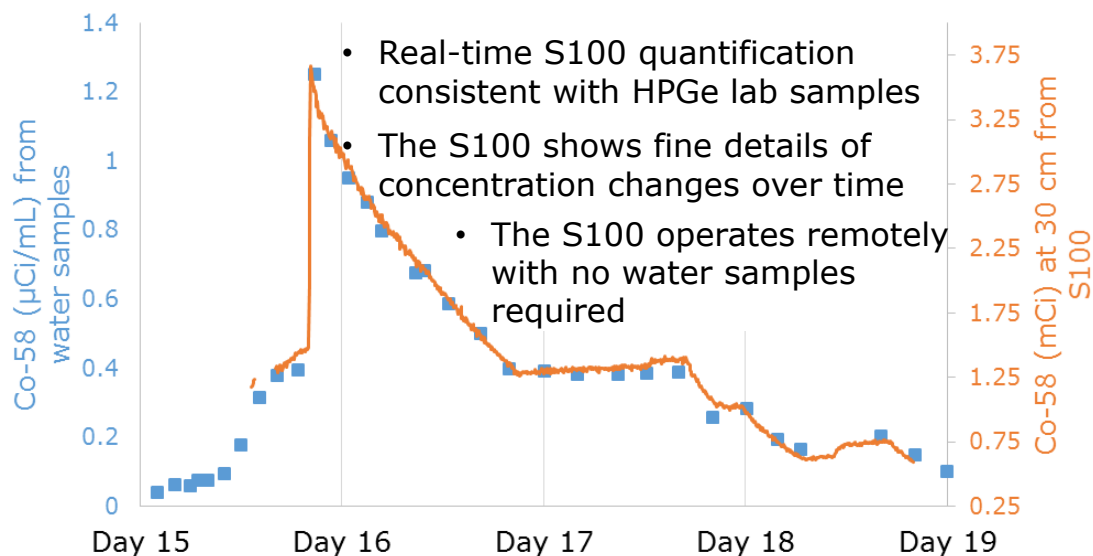
Extend energy range to 9 MeV. Not available with high-resolution option.

Compton Imaging Option (S100i, S400i)

Enable imaging 250 keV to 3 MeV
Field of View: 4π (360°)
Angular Precision: $\pm 1^\circ$ source localization for all 4π
Angular Resolution: $\sim 30^\circ$ FWHM for all 4π (real time) and $\sim 20^\circ$ FWHM for all 4π (post processing)

S100 Specifications

Dimensions:	8.25 in x 3.5 in x 5.75 in (21 cm x 9 cm x 15 cm)
Weight:	5.2 lbs (2.4 kg)
Battery Life:	>2 hours at 23°C (73°F) >1 hours at -20°C (-4°F) or 50°C (122°F)
Power Supply:	100-240 V, 47-63 Hz
Startup & Operating Temp.:	-20°C to 50°C (-4°F to 122°F)
Storage Temperature:	-20°C to 60°C (-4°F to 140°F)
Ingress Protection:	IP65 with fan replacement
Mount:	Mount holes with custom mounting brackets available 1/4"-20 tripod-mount attachment available
System Cooling:	Proprietary external heat sink and removable fan
User Service:	Removable fan cover; replaceable fan and fuse
Energy Resolution:	$\leq 1.1\%$ FWHM at 662 keV (coincident interactions combined) $\leq 0.9\%$ FWHM at 662 keV (coincident interactions separated)
Sensitivity:	Detects ^{137}Cs producing $\sim 3 \mu\text{R/hr}$ in $<1 \text{ min}$
Energy Range:	50 keV to 3 MeV
Crystal Volume:	$>4.5 \text{ cm}^3$ CZT (CdZnTe)
Count-Rate Limit:	1 rem/hr (10 mSv/hr) bare- ^{137}Cs equivalent
Isotope Library:	Select from 3573 ENDF isotopes & user defined; unlimited
Startup Time:	$<60 \text{ s}$ at 23°C (73°F)
Display:	8" 1280x800 HD tablet or internet browser
Tablet Communication:	Peer-to-peer WiFi or Bluetooth, or wired connection
Other Communication:	Ethernet RJ45 port; TCP/IP
Views:	Spectrum, isotope trends
Data Storage:	Removable USB (64 GB) included
Warranty:	2 years (includes annual recalibration and software updates)
Includes:	Visualizer software for advanced post processing Power/accessory cables, stylus, and tablet
Optional Add-On:	Long-range RF communication antenna



Measurement at RHR return in U.S. nuclear facility