ORTEC

Safeguards koaxial HPGe-detektor

HPGe gamma detector

Coaxial HPGe detector for safeguards, isotope-ratio determination and non-destructive assay of nuclear materials.



Detector type
HPGe, coaxial or semi-planar by SGD-GEM model [1]

Energy resolution at 122 keV
FWHM maximum limits 0.61–0.80 keV at 1 kcps and optimal shaping; model-dependent [2]

Specifications

DETECTOR

Detector type	HPGe, coaxial or semi-planar by SGD-GEM model	[1]
Crystal thickness	Minimum 15, 30, 50 or 60 mm, by model	[2]

PERFORMANCE

Energy resolution at 122 keV	FWHM maximum limits 0.61–0.80 keV at 1 kcps and optimal shaping; model-dependent	[2]
Energy resolution at 1.33 MeV	FWHM maximum limits 1.7–1.8 keV at 1 kcps and optimal shaping; model-dependent	[2]

MECHANICAL

Crystal diameter	Nominally 36, 50 or 65 mm, model-dependent	[2]
Endcap	Aluminium	[1]

ORDERING & ACCESSORIES

Models	SGD-GEM-3615P4, -5030P4, -5050P4, -6560P4	[2]
Cryostat configurations	Fixed, portable or custom	[1]
Bias control	SMART-1 (-SMP), optional	[1]
Cooling and accessories	Cryostat and dewar or other cooling device required for operation; not included with the detector. A cryostat must be ordered with a Streamline detector.	[2]

Models

Model	Detector type	Crystal diameter	Crystal thickness	Energy resolution at 122 keV

SGD-GEM-3615	HPGe, coaxial or semi-planar by SGD-GEM model [1]	36 mm (nominal) [2]	15 mm (minimum) [2]	≤ 0.61 keV FWHM; at 1 kcps [2]
SGD-GEM-5030	Semi-planar HPGe, SGD-GEM [1]	50 mm (nominal) [2]	30 mm (minimum) [2]	≤ 0.65 keV FWHM; at 1 kcps [2]
SGD-GEM-5050	Coaxial HPGe (SGD-GEM) [1]	50 mm (nominal) [2]	50 mm (minimum) [2]	≤ 0.75 keV FWHM; at 1 kcps [2]
SGD-GEM-6560	HPGe, coaxial or semi-planar by SGD-GEM model [1]	65 mm (nominal) [2]	60 mm (minimum) [2]	≤ 0.80 keV FWHM; at 1 kcps [2]

Model	Energy resolution at 1.33 MeV	Energy resolution at 122 keV, short shaping time	Energy resolution at 1.33 MeV, short shaping time	Endcap diameter
SGD-GEM-3615	≤ 1.7 keV FWHM; at 1 kcps [2]	≤ 0.67 keV FWHM; at 30 kcps [2]	≤ 2.0 keV FWHM; at 30 kcps [2]	70 mm (nominal) [2]
SGD-GEM-5030	≤ 1.7 keV FWHM; at 1 kcps [2]	≤ 0.75 keV FWHM; at 30 kcps [2]	≤ 2.1 keV FWHM; at 30 kcps [2]	70 mm (nominal) [2]
SGD-GEM-5050	≤ 1.8 keV FWHM; at 1 kcps [2]	≤ 0.89 keV FWHM; at 30 kcps [2]	≤ 2.1 keV FWHM; at 30 kcps [2]	70 mm (nominal) [2]
SGD-GEM-6560	≤ 1.8 keV FWHM; at 1 kcps [2]	≤ 0.96 keV FWHM; at 30 kcps [2]	≤ 2.2 keV FWHM; at 30 kcps [2]	83 mm (nominal) [2]

Model	Ordering configurations	Relative efficiency
SGD-GEM-3615	SGD-GEM-3615P4 (PopTop) / SGD-GEM-3615 (Streamline) [2]	–
SGD-GEM-5030	SGD-GEM-5030P4 (PopTop) / SGD-GEM-5030 (Streamline) [2]	13 % (nominal) [2]
SGD-GEM-5050	SGD-GEM-5050P4 (PopTop) / SGD-GEM-5050 (Streamline) [2]	20 % (nominal) [2]
SGD-GEM-6560	SGD-GEM-6560P4 (PopTop) / SGD-GEM-6560 (Streamline) [2]	50 % (nominal) [2]

Sources

[1] High Performance High Purity Germanium (HPGe) Coaxial Radiation Detectors for Safeguards and Non-Destructive Assay
ORTEC (AMETEK) · product-page · Application Considerations; More Information; Options · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/radiation-detectors/high-pu…

[2] High-Performance Germanium Coaxial Detectors for Safeguards and Non-Destructive Assay – Product Configuration Guide
ORTEC (AMETEK) · datasheet · p. 11, 'Ordering Information and Warranted Specifications'; p. 11; p. 11; p. 2 (optimum shaping time and 1 kcps) · checked 2026-10-16
https://edge.sitecorecloud.io/ametekinc1236b-ametekb19a-productiondcfa-1d17/media/Project/Ametek/ortec-onlin…

Every value is taken from the manufacturer's own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer's published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.