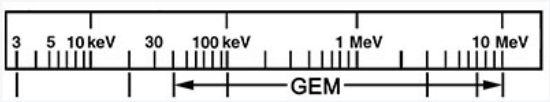
ORTEC

GEM HPGe-detektorer

HPGe detectors for gamma spectroscopy

P-type coaxial germanium detectors for laboratory measurements from approximately 40 keV and above. Select a configuration for the sample geometry and measurement task.



Energy range
Approximately 40 keV and above [1]

Relative efficiency
10–150% across the model series; higher on request [2]

Energy resolution at 122 keV
FWHM maximum limits .80–1.30 keV fo r GEM10–GEM150; mo del-dependent [2]

Specifications

DETECTOR

Detector type	P-type coaxial HPGe	[1]

PERFORMANCE

Relative efficiency	10–150% across the model series; higher on request	[2]
Energy resolution at 122 keV	FWHM maximum limits 0.80–1.30 keV for GEM10–GEM150; model-dependent	[2]
Energy resolution at 1.33 MeV	FWHM maximum limits 1.7–2.3 keV for GEM10–GEM150; model-dependent	[2]
Resolution measurement conditions	Total system resolution measured at the factory per ANSI/IEEE Std 325-1996, at optimal shaping time with an ORTEC DSPEC-50A	[2]

MEASURING RANGE

Energy range	Approximately 40 keV and above	[1]

ELECTRONICS & SIGNAL

Preamplifier	ptional PLUS for high count rates	[1]

COOLING

Cooling	LN_2 or compatible mechanical cooling, by configuration	[1]

MECHANICAL

Endcap	Low-background carbon fibre option	[1]

ORDERING & ACCESSORIES

Cryostat configurations	PopTop or Streamline	[1]
Bias control	SMART-1 (-SMP), optional	[1]

Cooling and accessories	Cryostat and dewar or other cooling device required for operation and not included with the detector; a cryostat must be ordered with a Streamline detector	[2]

Models

Model	Relative efficiency	Energy resolution at 122 keV	Energy resolution at 1.33 M eV	Peak-to-Compton ratio
GEM10	10 % (minimum) [2]	≤ 0.80 keV FWHM [2]	≤ 1.7 keV FWHM [2]	≥ 41:1 [2]
GEM15	15 % (minimum) [2]	≤ 0.82 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≥ 46:1 [2]
GEM20	20 % (minimum) [2]	≤ 0.82 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≥ 52:1 [2]
GEM25	25 % (minimum) [2]	≤ 0.82 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≥ 56:1 [2]
GEM30	30 % (minimum) [2]	≤ 0.85 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≥ 60:1 [2]
GEM40	40 % (minimum) [2]	≤ 0.87 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≥ 64:1 [2]
GEM50	50 % (minimum) [2]	≤ 0.90 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≥ 66:1 [2]
GEM60	60 % (minimum) [2]	≤ 1.00 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≥ 70:1 [2]
GEM70	70 % (minimum) [2]	≤ 1.00 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≥ 75:1 [2]
GEM80	80 % (minimum) [2]	≤ 1.10 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≥ 77:1 [2]
GEM90	90 % (minimum) [2]	≤ 1.20 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≥ 80:1 [2]
GEM100	100 % (minimum) [2]	≤ 1.20 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≥ 83:1 [2]
GEM110	110 % (minimum) [2]	≤ 1.30 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≥ 85:1 [2]
GEM120	120 % (minimum) [2]	≤ 1.30 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≥ 86:1 [2]
GEM130	130 % (minimum) [2]	≤ 1.30 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≥ 90:1 [2]
GEM140	140 % (minimum) [2]	≤ 1.30 keV FWHM [2]	≤ 2.2 keV FWHM [2]	≥ 90:1 [2]
GEM150	150 % (minimum) [2]	≤ 1.30 keV FWHM [2]	≤ 2.3 keV FWHM [2]	≥ 90:1 [2]

Model	Peak shape FW.1M/FWHM	Peak shape FW.02M/FWHM	Endcap diameter	Ordering configurations
GEM10	1.9 (maximum) [2]	2.6 (typical) [2]	70 mm (nominal) [2]	GEM10P4-70 (PopTop) / GEM10-70 (Streamline) [2]
GEM15	1.9 (maximum) [2]	2.6 (typical) [2]	70 mm (nominal) [2]	GEM15P4-70 (PopTop) / GEM15-70 (Streamline) [2]
GEM20	1.9 (maximum) [2]	2.6 (typical) [2]	70 mm (nominal) [2]	GEM20P4-70 (PopTop) / GEM20-70 (Streamline) [2]
GEM25	1.9 (maximum) [2]	2.6 (typical) [2]	76 mm (nominal) [2]	GEM25P4-76 (PopTop) / GEM25-76 (Streamline) [2]
GEM30	1.9 (maximum) [2]	2.6 (typical) [2]	76 mm (nominal) [2]	GEM30P4-76 (PopTop) / GEM30-76 (Streamline) [2]
GEM40	1.9 (maximum) [2]	2.6 (typical) [2]	76 mm (nominal) [2]	GEM40P4-76 (PopTop) / GEM40-76 (Streamline) [2]

GEM50	1.9 (maximum) [2]	2.6 (typical) [2]	83 mm (nominal) [2]	GEM50P4-83 (PopTop) / GEM50-83 (Streamline) [2]
GEM60	1.9 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM60P4-95 (PopTop) / GEM60-95 (Streamline) [2]
GEM70	2.0 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM70P4-95 (PopTop) / GEM70-95 (Streamline) [2]
GEM80	2.0 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM80P4-95 (PopTop) / GEM80-95 (Streamline) [2]
GEM90	2.0 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM90P4-95 (PopTop) / GEM90-95 (Streamline) [2]
GEM100	2.0 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM100P4-95 (PopTop) / GEM100-95 (Streamline) [2]
GEM110	2.0 (maximum) [2]	3.0 (typical) [2]	95 mm (nominal) [2]	GEM110P4-95 (PopTop) / GEM110-95 (Streamline) [2]
GEM120	2.0 (maximum) [2]	3.1 (typical) [2]	108 mm (nominal) [2]	GEM120P4-108 (PopTop) / GEM120-108 (Streamline) [2]
GEM130	2.0 (maximum) [2]	3.1 (typical) [2]	108 mm (nominal) [2]	GEM130P4-108 (PopTop) / GEM130-108 (Streamline) [2]
GEM140	2.0 (maximum) [2]	3.1 (typical) [2]	108 mm (nominal) [2]	GEM140P4-108 (PopTop) / GEM140-108 (Streamline) [2]
GEM150	2.0 (maximum) [2]	3.1 (typical) [2]	108 mm (nominal) [2]	GEM150P4-108 (PopTop) / GEM150-108 (Streamline) [2]

Sources

[1] GEM P-type Coaxial High Purity Germanium (HPGe) Radiation Detectors
RTEC (AMETEK) · product-page · Product page intro; Feature list; Options · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/radiation-detectors/high-pu...

[2] GEM Series Coaxial HPGe Detector – Product Configuration Guide
RTEC (AMETEK) · datasheet · p. 1; p. 18, 'Ordering Information and Warranted Specifications'; p. 18, table 'Ordering Information and Warranted Specifications', notes 1–2 · 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.