

GEM High-Purity Germanium (HPGe) Coaxial Detectors (in PopTop Capsule)

For computer-based analysis of complex spectra requiring the best in resolution, peak-to-Compton ratio, peak shape, and efficiency:

- Large stocklist at all times
- Efficiencies to 150%, higher on request
- New “Application-Tuned” PROFILE Series available
- PopTop flexibility
- Excellent energy resolution
- Excellent peak symmetry
- Automatic high-voltage shutdown protects preamplifier input FET
- Indicator warns of excessive counting rate
- PLUS preamplifier option for ultra-high-rate applications

ORTEC maintains a large stocklist of GEM detectors. Some of these have “**super specifications**,” that is, a warranted energy resolution better than the first category GEM specifications.

Unless otherwise specified, each GEM HPGe coaxial detector is supplied in a PopTop capsule. A complete detector assembly requires a cryostat and a dewar.

Options of Interest

PLUS preamplifier option for ultra-high-count-rate applications

Non-PopTop low-background versions of the GEM detector are available

X-COOLER II option for practical LN₂-free cooling

SMART-1 “Intelligent” detector option



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Ordering Information

For GEM Detector in PopTop capsule†, add "P4" to the model no. [e.g., GEM90P4-95].

Endcap Diameter must be specified, see Endcap Diameter Options. [e.g., GEM10-70, GEM35P4-76]

FW.02M/FWHM specification is Typical, all other specifications are warranted.

Model No.	Efficiency (%)	Resolution		Peak-to-Compton Ratio	Peak Shape		Endcap Diameter Options
		@122 keV (keV)	@1.33 MeV (keV)		FW.1M\FWHM	FW.02M/FWHM typical	
GEM150	150	1.30	2.3	90:1	2.0	3.1	-108
GEM140	140	1.30	2.2	90:1	2.0	3.1	-108
GEM130	130	1.30	2.1	90:1	2.0	3.1	-108
GEM120	120	1.30	2.1	86:1	2.0	3.1	-108
GEM110	110	1.30	2.1	85:1	2.0	3.0	-95
GEM100	100	1.20	2.1	83:1	2.0	3.0	-95
GEM90	90	1.20	2.0	80:1	2.0	3.0	-95
GEM80	80	1.10	2.0	77:1	2.0	3.0	-95
GEM75	75	1.10	2.0	77:1	2.0	3.0	-95
GEM70	70	1.00	2.0	75:1	2.0	3.0	-95
GEM65	65	1.00	1.95	73:1	1.9	3.0	-83, -95
GEM60	60	1.00	1.95	70:1	1.9	3.0	-83, -95
GEM55	55	1.00	1.90	67:1	1.9	2.8	-83
GEM50	50	0.90	1.90	66:1	1.9	2.6	-83
GEM45	45	0.90	1.90	64:1	1.9	2.6	-76, -83
GEM40	40	0.87	1.85	64:1	1.9	2.6	-76, -83
GEM35	35	0.85	1.85	62:1	1.9	2.6	-70, -76, -83
GEM30	30	0.85	1.85	60:1	1.9	2.6	-70, -76, -83
GEM25	25	0.82	1.85	56:1	1.9	2.6	-70, -76, -83
GEM20	20	0.82	1.80	52:1	1.9	2.6	-70
GEM15	15	0.82	1.80	46:1	1.9	2.6	-70
GEM10	10	0.80	1.75	41:1	1.9	2.6	-70

Options

- RB Reduced Background PopTop capsule with Carbon Fiber Endcap, add -RB to the model number [e.g., GEM10P4-70-RB]
- PLUS Ultra-high-count-rate Preamplifier, add "-PLUS" to the model number [e.g., GEM10-70-PLUS]
- SMART-1-P SMART-1 detector option for positive bias detector. To order, add SMART-1-P as a separate line item.

† All GEM PopTop detector capsules include sealed detector element, preamplifier, and high-voltage filter. Useful energy ranges, from 40 keV to 10 MeV.

*FWHM = Full Width at Half Maximum; FW.1M = Full Width at One-Tenth Maximum; FW.02M = Full Width at One-Fiftieth Maximum; total system resolution for a source at 1000 counts/s measured in accordance with ANSI/IEEE Std. 325-1996, using ORTEC standard electronics.

**Typical Value.

NOTE: For those familiar with HPGe detector specifications, you will notice that ORTEC now offers ONLY "first category" detector specifications. Recent process improvements now make this possible.

Specifications subject to change
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