

## GLP Series Planar HPGe Low-Energy Photon Detectors

- Excellent energy resolution in the 3 to 300 keV range
- Active area from 30 to 1000 mm<sup>2</sup>
- PopTop flexibility
- Unequaled timing performance
- Detectors larger than 36-mm diameter available
- Available with special feedback resistor for high-rate applications
- POF preamplifier option for superior energy resolution and high count rate at low energies

The ORTEC GLP Series Planar Low-Energy Photon Spectrometer (LEPS) is a small-area, high-purity germanium photon spectrometer for use in applications over the energy range from 3 to ~300 keV.

Available in diameters from 6 to 36 mm, the LEPS offers exceptional energy resolution for low and intermediate energies. At low energies in nuclear structure physics GLP detectors are irreplaceable because of their excellent timing performance (see Table 1). At energy rates exceeding the values shown in Table 2, (for example, in Safeguards applications), good performance can be obtained by using a lower value feedback resistor (Fig. 1).

A cross sectional drawing of a 16-mm LEPS is shown in Figure 2.



**Table 1. Timing at Low Energies with 10 cm<sup>2</sup> Active Area Planar Detectors\*.**

Source	Energy (keV)	Time Resolution(ns)
<sup>22</sup> Na	20 ±10	20 ±2
	100 ±10	8.5 ±1
	511 ±5	4.5 ±0.2
<sup>133</sup> Ba	31 ±3	19 ±2
	81 ±3	Isomer
	85 ±5	11 ±1
	356 ±5	6.0 ±0.5
<sup>152</sup> Eu	41 ±3	15 ±1
	122 ±5	Isomer
	125 ±5	6.5 ±0.5
	344 ±5	5.0 ±0.2
	779 ±5	3.8 ±0.3

\*Data courtesy of Dr. Kim Lister, Argonne National Lab.

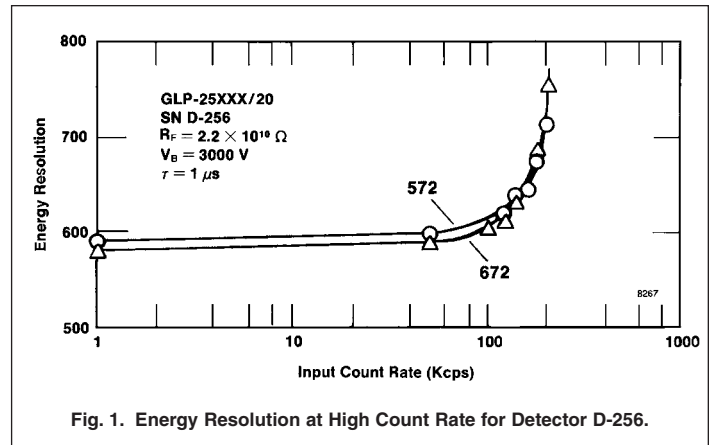


Fig. 1. Energy Resolution at High Count Rate for Detector D-256.

**Table 2. Energy Rate of Preamplifiers Supplied with Photon Detectors.**

Preamplifier Type	Detector Type	Maximum Energy Rate (MeV Sec <sup>-1</sup> )
Resistive Feedback	GEM, GMX,	145,000
	LO-AX, GLP (25, 32, 36 mm)	4,000
	GLP (6, 10, 16 mm)	2,200
Transistor Reset (Order "Plus")	GEM, GMX	1,000,000
Pulsed Optical Feedback (Order "POF")	IGLET, IGLET-X, SLP, GLP, SLB (6, 10, 16 mm)	4,000*
Modified For HCR (Resistive Feedback)	All GLPs	10,000

\*The POF does not "lock up" or saturate at high count rates, unlike resistor-feedback designs. At ultra-high count rates with the POF, throughput is limited by reset pulse rates. 4000 MeV/s is an estimate of maximum "useable" energy rate.

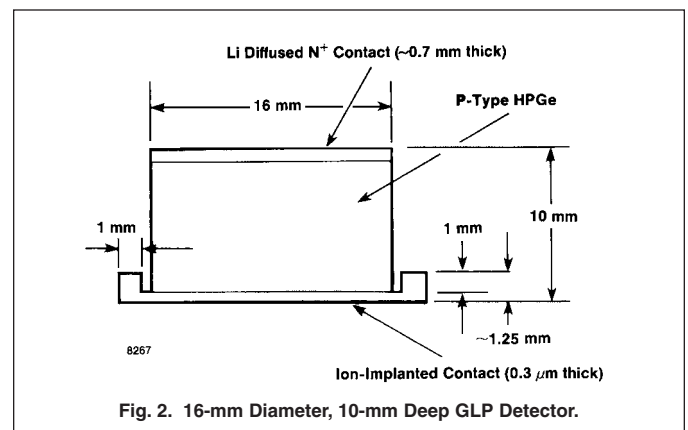


Fig. 2. 16-mm Diameter, 10-mm Deep GLP Detector.

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## Ordering Information

If dimensional considerations are critical, contact factory. For non-PopTop remove the "P4" from the model number. A complete detector assembly requires a cryostat and a dewar.

Model No.	Active Diameter (mm)	Dimensions		Energy Resolution FWHM**	
		Area (mm <sup>2</sup> )	Depth* (mm)	at 5.9 keV	at 122 keV
GLP-06165/05P4	≥6†	≥28	≥5	≤165	≤480
GLP-10180/07P4	10†	80	7	180	485
GLP-16195/10P4	16†	200	10	205	495
GLP-25325/10P4	25‡	500	10	325	550
GLP-25300/13P4	25‡	500	13	300	545
GLP-32355/10P4	32‡	800	10	355	580
GLP-32340/13P4	32‡	800	13	340	570
GLP-36385/10P4	36‡	1000	10	385	595
GLP-36360/13P4	36‡	1000	13	360	585

### Options

SMART-1-N SMART-1 detector option for negative bias detector. To order, add SMART-1-N as a separate line item.

\* Depletion depths are minimums. If a specific maximum depth is required, please specify.

\*\* Resolution performance specifications shown are applicable to standard resistor feedback systems.

† Supplied with 0.005-inch-thick Be window.

‡ Supplied with 0.010-inch-thick Be window.

For high rate applications, contact the factory for results obtainable with a POF preamplifier.

Specifications subject to change  
063008

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