



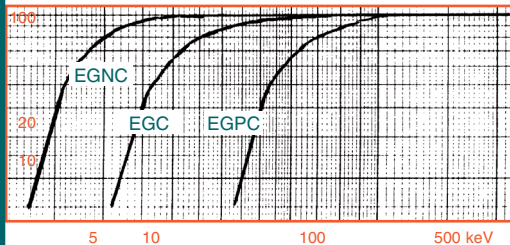
P-TYPE OR N-TYPE HIGH PURITY GERMANIUM COAXIAL DETECTORS

- Energy ranges:
 - 40 keV to 10 MeV (EGPC series)
 - 3 keV to 10 MeV (EGNC series)
 - 15 keV to 10 MeV (EGC series)
- Efficiencies to 150%, areas up to 5000 mm²
- Built-in high voltage cut-off circuitry
- Large choice of cryostats including electrically cooled versions
- Optional transistor reset preamplifiers for high count rate applications
- Special ultra low background versions, with special selected materials
- Stocked in the USA

EGPC - EGNC - EGC SERIES

EGPC - EGNC - EGC SERIES

SPECIFICATIONS



Low energy response for Eurisy Mesures EGNC, EGC, and EGPC Type Detectors

A wide range of HPGe coaxial detectors:

- EGPC: P-type
- EGC, EGNC: N-type

The EGNC cryostat has a front Beryllium window for a better response at low energies.

• High Technology HPGe Detectors

All EURISYS MESURES germanium detectors are manufactured using state-of-the-art equipment for ion implantation and surface passivation.

The EURISYS MESURES technologies guarantee optimum performance for energy and timing resolution, while maintaining maximum ruggedness of entrance window.

Each detector set includes an HPGe crystal, a vacuum cryostat, a liquid nitrogen dewar, a charge sensitive preamplifier with high voltage shut-off alarm circuitry and associated LED indicators.

A wide range of cryostats and dewars of 3 l to 30 l capacity are offered, allowing holding times ranging from 50 hours to 15 days. All cryostats can withstand repeated thermal cycles between room temperature and liquid nitrogen temperature.

• How to Choose a Detector

The low energy response depends on the type of the entrance window of the detector and the elemental material of the endcap. Typical values are summarized below.

Detector Type	Entrance Window		Ge diode	
	Element	Thickness (mm)	Type	Dead zone thickness (µm)
EGNC	Be	0.3	N	0.5
EGC	Al	1	N	0.5
EGPC	Al	1	P	500

• Preamplifiers

EGPC and EGNC series detectors are usually equipped with resistive feedback preamplifiers: The option transistor reset preamplifier is dedicated to measurements at high count rates.

• Indicators

High count rate LED (green)

Temperature status: a red LED flashes and indicates that the detector has reached room temperature

• Count Rate

Optimum operation for coaxial germanium detectors, associated with gaussian shaping amplifiers, is obtained for time constants between 4 and 8 microseconds, with a throughput capability of 60,000 counts/s at 1.33 MeV and 300,000 counts/s at 122 keV.

Count rate capability is significantly improved when using a transistor reset preamplifier connected to a spectroscopy amplifier associated with a gated integrator.

• Radiation Damage

External radiation, mainly fast neutrons, induce damage in germanium crystals, which in turn deteriorate performance; this becomes noticeable around 10^8 n/cm² for P-type coaxial detectors. In this case it is recommended that one use N-type germanium detectors where the damage threshold is about 10 times higher.

Damage can be repaired with an annealing operation at high temperature up to 212°F (100°C).



APTEC-NRC
<http://www.aptec-nrc.com>

• East-50B Caldari Road
Concord, ON
L4K 4N8
CANADA
Tel.: (905) 660-5373
Fax: (905) 660-9693

• 58 Richboynton Road
PO Box 937
Dover, NJ 07801
USA
Tel.: (973) 361-5600
Fax: (973) 361-6781

• 125 Titus Avenue,
PO Box H
Warrington, PA 18976
USA
Tel.: (215) 343-5900
Fax: (215) 343-3087