



P-type HPGe Coaxial Detectors GCD

(Liquid Nitrogen cooled)

Application

Detection of Gamma-rays in nuclear energetics and environmental control, in industry and scientific research, in medicine and other applications.

Complete set (standard)

- HPGe coaxial detector
- Preamplifier with cooled input stage
- Dewar vessel
- Cable set
- Documentation

Accessories (optional)

- Multichannel Analyzer (Digital or Analog-Digital)
- Analytical Software packages:
 - quantitative and qualitative analysis
 - γ -spectra modeling & efficiency registration calculation for complex geometry objects
 - extended radionuclide library
- Liquid nitrogen storage and filling system
- Liquid nitrogen sensor and monitor
- Cable set extension

Features

- 10% - 160% and higher efficiency HPGe coaxial detectors are available
- Energy range 40 keV - 10 MeV
- Input window materials: Aluminum
- Built-in or Remote Preamplifier types are available depending on application
- Low instrument background
- High energy rate up to 200000 MeV/s
- Excellent peak symmetry & high resolution
- HV supply protection if detector is warm
- High count rate indicator
- Variable cryostat design modifications

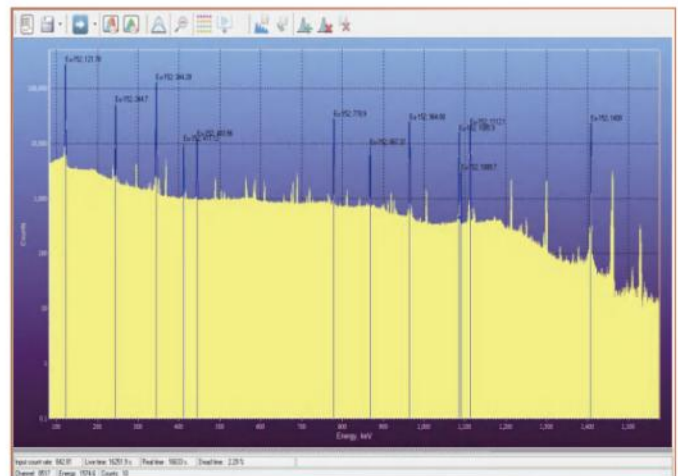
Specification

Bringing Solutions

Model	Relative Efficiency, %	Energy resolution		Peak/Compton ratio	Peak Shape	
		122 keV, (eV)	1.33 MeV, (keV)		FW.1M FWHM	FW.02M FWHM
GCD - 10 175	10	825	1.75	41:1	1.9	2.65
GCD - 15 180	15	825	1.80	46:1	1.9	2.65
GCD - 20 180	20	850	1.80	51:1	1.9	2.65
GCD - 25 185	25	850	1.85	55:1	1.9	2.65
GCD - 30 185	30	875	1.85	58:1	1.9	2.65
GCD - 35 190	35	875	1.90	60:1	1.9	2.65
GCD - 40 190	40	895	1.90	62:1	1.9	2.65
GCD - 50 190	50	895	1.90	64:1	1.9	2.65
GCD - 60 200	60	1000	2.00	68:1	2.0	3.00
GCD - 70 200	70	1000	2.00	73:1	2.0	3.00
GCD - 80 210	80	1000	2.10	77:1	2.0	3.00
GCD - 100 220	100	1000	2.10	81:1	2.0	3.00
GCD - 120 220	120	1000	2.10	83:1	2.0	3.00
GCD - 140 220	140	1100	2.20	86:1	2.0	3.00
GCD - 160 220	160*	1150	2.20	88:1	2.0	3.00

* Detectors with other relative efficiencies are available.

Plenty of cryostat geometries available





P-type HPGe Coaxial Detectors GCDX (with extended energy range)

Application

Detection of Gamma-rays in nuclear energetics and environmental control, in industry and scientific research, in medicine and other applications.

Complete set (standard)

- HPGe coaxial detector
- Preamplifier with cooled input stage
- Dewar vessel
- Cable set
- Documentation

Accessories (optional)

- Multichannel Analyzer
- Analytical Software packages:
 - quantitative and qualitative analysis
 - γ -spectra modeling & efficiency registration calculation for complex geometry objects
 - extended radionuclide library
- Liquid nitrogen storage and filling system
- Liquid nitrogen sensor and monitor
- Cable set extension

Features

- 10% - 100% and higher efficiency HPGe coaxial detectors are available
- **Extended energy range 3 keV - 10 MeV**
- Input window materials: Aluminum, Beryllium or Carbon-fiber
- Built-in or Remote Preamplifier types are available depending on application
- Low instrument background
- High energy rate up to 200000 MeV/s
- Excellent peak symmetry & high resolution
- HV supply protection if detector is warm
- High count rate indicator
- Variable cryostat design modifications

Specification

Bringing Solutions

Model	Relative Efficiency, %	Energy resolution			Peak/Compton ratio	Peak Shape	
		5.9 keV, (eV)	122 keV, (eV)	1.33 MeV, (keV)		FW.1M FWHM	FW.02M FWHM
GCDX - 10 175	10	400	720	1.75	41:1	1.9	2.65
GCDX - 15 180	15	450	740	1.80	46:1	1.9	2.65
GCDX - 20 180	20	460	760	1.80	51:1	1.9	2.65
GCDX - 25 185	25	480	775	1.85	55:1	1.9	2.65
GCDX - 30 185	30	500	800	1.85	58:1	1.9	2.65
GCDX - 35 190	35	550	830	1.90	60:1	1.9	2.65
GCDX - 40 190	40	600	850	1.90	62:1	1.9	2.65
GCDX - 50 190	50	620	875	1.90	64:1	1.9	2.65
GCDX - 60 200	60	670	900	2.00	68:1	2.0	3.00
GCDX - 70 200	70	700	950	2.00	73:1	2.0	3.00
GCDX - 80 210	80	750	950	2.10	77:1	2.0	3.00
GCDX - 100 210	100*	800	1000	2.10	81:1	2.0	3.00

* Detectors with other relative efficiencies are available

Energy range:

3 keV - 10 MeV with Be input window

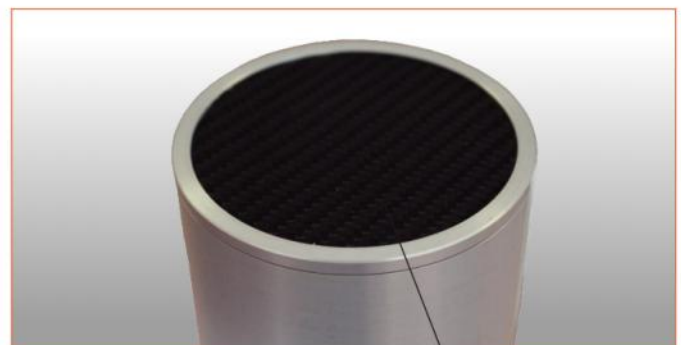
5 keV - 10 MeV with carbon fiber input window

Advantages

- HPGe detectors with extended energy range GCDX provide outstanding performance not only as regular coaxial detectors but also allowing to go lower in energy range down to 3 keV.
- Thin contact structure of the HPGe detector accompanying with input window made of Beryllium or Carbon fiber guarantee low energy photon transition to the HPGe crystal and its registration.
- Input window of the detector is integrated into the end cap of the detector by using high-tech vacuum-tight materials



Beryllium
input window



Carbon fiber
input window



P-type HPGe Over-Square shape Detectors (with extended energy range) GCDX-OS

Application

Detection of Gamma-rays in nuclear energetics and environmental control, in industry and scientific research, in medicine and other applications.

Complete set (standard)

- HPGe coaxial detector
- Preamplifier with cooled input stage
- Dewar vessel
- Cable set
- Documentation

Accessories (optional)

- Multichannel Analyzer (Digital or Analog-Digital)
- Analytical Software packages:
 - quantitative and qualitative analysis
 - γ -spectra modeling & efficiency registration calculation for complex geometry objects
 - extended radionuclide library
- Liquid nitrogen storage and filling system
- Liquid nitrogen sensor and monitor
- Cable set extension

Features

- 10% - 100% and higher efficiency HPGe coaxial detectors are available
- **Extended energy range 3 keV - 10 MeV**
- Input window materials: Aluminum, Beryllium or Carbon-fiber
- Built-in or Remote Preamplifier types are available depending on application
- Low instrument background
- High energy rate up to 200000 MeV/s
- Excellent peak symmetry & high resolution
- HV supply protection if detector is warm
- High count rate indicator
- Variable cryostat design modifications

Specification

Bringing Solutions

Model	Relative Efficiency, %	Sensitive area, mm ²	Thickness, mm	Energy resolution		
				at 5.9 keV (eV)	at 122 keV (eV)	at 1.33 MeV (keV)
OS-06350	6	1590	15	350	650	1.75
OS-07390	7.5	2000	15	390	650	1.80
OS-10350	9	2000	20	350	650	1.90
OS-12375	12	2000	35	375	680	1.90
OS-13400	13	2800	20	400	700	1.90
OS-18400	18	2800	25	400	700	1.90
OS-20450	20	3800	20	450	750	1.90
OS-26450	26	3800	25	450	750	1.90
OS-34450	34	3800	30	450	750	1.90
OS-37500	37	5000	25	500	750	2.00
OS-48500	48	5000	30	500	750	2.00
OS-60500	60*	6000	30	500	750	2.00

* Detectors with other relative efficiencies are available.

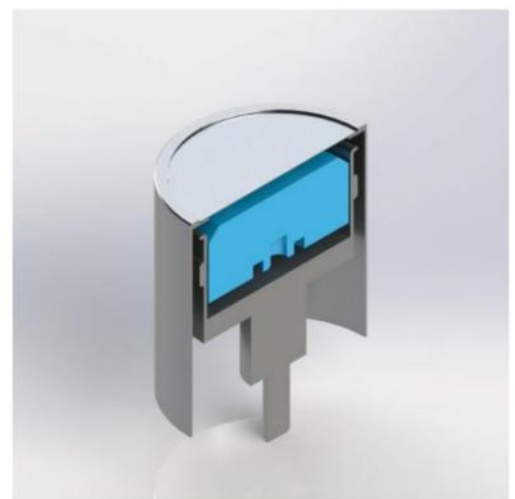
Energy range:

3 keV - 10 MeV with Be input window

5 keV - 10 MeV with carbon fiber input window

Advantages

- HPGe detectors with extended energy range GCDX-OS are different from GCDX by its shape. It is still allowing to go lower in energy range down to 3 keV and thin contact structure of the HPGe detector guarantee low energy photon transition to the HPGe crystal and its registration.
- Input window made of Beryllium or Carbon fiber of the detector is integrated into the end cap of the detector by using high-tech vacuum-tight materials.
- GCDX-OS HPGe detectors are showing way better performance, such as resolution improvement, if you consider energy range from 100 keV to 662 keV. This is vitally important for those applications where radionuclides with lower energies are required to measure and analyze.
- Over-square shape HPGe crystals of the GCDX-OS detectors provide better efficiency while measuring relatively compact samples like bottles, vials, petri dishes, etc.
- Increase of efficiency is observed due to the fact that HPGe crystal is having similar volume to GCD and GCDX detector but larger diameter in relationship to its height. Therefore, relative intensity and efficiency are higher in energy range 1.5-2 MeV.



Over-Square shape HPGe crystal



HPGe Planar Detectors GPD

(Liquid Nitrogen cooled)

Application

Detection of Gamma and X-rays in nuclear energetics and environmental control, in industry and scientific research, in medicine and other applications.

Complete set (standard)

- HPGe planar detector
- Preamplifier with cooled input stage
- Dewar vessel
- Cable set
- Documentation

Accessories (optional)

- Multichannel Analyzer
- Analytical Software packages:
 - quantitative and qualitative analysis
 - γ -spectra modeling & efficiency registration calculation for complex geometry objects
 - extended radionuclide library
- Liquid nitrogen storage and filling system
- Liquid nitrogen sensor and monitor
- Cable set extension

Specification

Bringing Solutions

Model	Diameter, mm	Detector Sensitive Area		Energy resolution, eV	
		Area, mm ²	Thickness, mm	5.9 keV	122 keV
GPD - 05 145	5	20	6	145	465
GPD - 08 155	8	50	6	155	485
GPD - 12 165	12	100	7	165	490
GPD - 12 160	12	100	10	160	490
GPD - 16 180	16	200	11	180	495
GPD - 25 300	25	500	13	300	545
GPD - 36 360	36	1000	13	360	585
GPD - 36 300	36	1000	15	300	560

* Detectors with other parameters are available

Features

- Built-in or Remote Preamplifier types are available depending on application
- Ability to increase energy rate to 20000 MeV/s
- Energy range from 3 keV to 1500 keV (2500 keV)
- Input window materials: Aluminum, Beryllium or Carbon-fiber
- Excellent peak symmetry & high resolution
- HV supply protection if detector is warm
- High count rate indicator
- Variable cryostat design modifications

Plenty of cryostat geometries available





Portable HPGe Gamma-ray Detectors

(Liquid Nitrogen cooled)

Application

Detection, accumulation and processing of gamma spectra in field and industry conditions were small dimensions and weight of spectrometer are important.

Complete set (standard)

- HPGe coaxial detector
- Preamplifier with State-of-Health (SHP) feature
- Dewar vessel
- Cable set
- Documentation

Features

- Light weight aluminum construction
- Detection of radiation in any spatial orientation
- Compact low-consuming electronics
- Available with HPGe Coaxial or Planar detector
- Transportation and storage without cooling
- Input window materials: Aluminum, Beryllium or Carbon-fiber
- Dewar vessels available with different volumes from 1l to 7l

Accessories (optional)

- Multichannel Analyzer
- Analytical Software packages:
 - quantitative and qualitative analysis
 - γ -spectra modeling & efficiency registration calculation for complex geometry objects
 - extended radionuclide library
- Hand-cart for Multichannel Analyzer, battery, transformer, etc.
- Additional batteries
- Charger
- Collimators
- Transport case
- Tripod
- Liquid nitrogen storage and filling system
- Cable set extension

Specification

Bringing Solutions

Parameter	Value
Energy range, keV	
Standard	40 - 10000
Extended	3 - 10000
HPGe detector efficiency, %	30*
Energy resolution for 30% efficiency detector, keV at energy	
122 keV	0.875
1.33 MeV	1.85
Peak to Compton ration	58:1
Time of cooling after filling with liquid nitrogen, h	4 - 8**
Time of continuous operation, days	1 - 5**
Al end cup thickness, mm	0.7
Weight of detector with empty Dewar vessel, kg	5 - 12**
Preamplifier cables have standard NIM connectors: POWER DC $\pm 12V$ - D-Sub-9pin, HV - SHV, OUT - BNC, TEST - BNC	

* HPGe Detectors are available with efficiency from 10% to 100%

** Depending on Dewar vessel volume and/or detector efficiency



Accessories

