

영 문 규 격 서

Commodity Description

품목번호 Item No.	관세분류번호 HSK No.	정부물품분류번호 (8자리)	품 명 Description	단위 Unit	수량 Quantity
	9030.10.0000	41115414	N-type HPGe Gamma ray Spectroscopy System	System	1

A. Features

1. This system is HPGe based Gamma-ray spectroscopy system for the purpose of analysis of neutron activated radioactivity samples.
2. Every function should be controlled by a personal computer Interfaced with Digital-Signal-Processing Multichannel Analyzer.
3. The High purity Germanium Detector is cooled down by electromechanical cooler
4. N-type coaxial High Purity Germanium Based Gamma-ray detector
5. Self status monitoring of detector by LCD.
6. Innovative DSP spectrometer with zero dead time correction.
7. Superior digital filter - Low Frequency Rejector/Pile up Rejector/Pole Zero Adjustment/Baseline Restorer
8. Virtual Oscilloscope
9. Fast communication using USB2.0 and TCP/IP.
10. Real time data acquisition and real time analysis

B. Components

- | | |
|--|------|
| 1. High Purity Germanium (HPGe) Coaxial Detector | 1 EA |
| 2. Electromechanical cooler | 1 EA |
| 3. Digital Gamma-ray Spectrometer | 1 EA |
| 4. MCA software + Control computer | 1 EA |

C. Specification

1. High Purity Germanium (HPGe) Coaxial Detector

- 1) Material: N-type HPGe
- 2) Useful Energy range : 3 keV~10 MeV
- 3) Relative efficiency : higher than 60%
- 4) Endcap Diameter : 95 mm
- 5) Resolution : less than 1.10 KeV@5.9keV & 2.30 KeV@1,332keV
- 6) Peak to Compton ratio : higher than 56 : 1
- 7) Peak Shape : FW.1M/FWHM : 2.0
FW.02M/FWHM : 3.0
- 8) Automatic high-voltage shutdown to protect preamplifier input FET.
- 9) Indicator warns of excessive counting rate.
- 10) Preamplifier & H.V. filter included

- 11) External preamplifier
- 12) Monitoring function for HPGe crystal temperature and DC voltage of preamplifier.
- 13) Shroud material : Al

2. Electromechanical cooler

- 1) LN2 free operation with LN2 equivalent resolution
- 2) AVC(Active Vibration Cancelation) technology
- 3) Vibration dampeners
- 4) Multi-orientation operation
- 5) Wide operating temperature range (-10°C to 40°C)
- 6) Quiet, less than 60 dB (A) at 1 meter below 30°C ambient
- 7) Long service life, MTTF(Mean Time To Failure) > 200,000 hours cooler
- 8) No maintenance (no gas lines or filters)
- 9) Vacuum hardened cryostat (no molecular sieve, no need for thermal cycling)
- 10) Small footprint and light weight (integrated controller, no external box)
- 11) Cooling rod length : 228 mm

3. Digital Gamma-ray Spectrometer

- 1) Fastest data transfer capability available with USB 2.0 & Ethernet
- 2) Full computer control of every spectrometer function
- 3) Computer selectable as either resistive feedback or TRP preamplifier.
- 4) System Conversion Gain is software controlled from 512 to 16 k channels.
- 5) Dead-Time Correction: Zero Dead Time(Loss Free Counting) method
- 6) Accuracy: <3% from 0 to 50,000 counts per second.
- 7) Maximum System Throughput: >100,000 cps with LFR off. >34,000 cps with LFR on
- 8) Pulse Pile-Up Rejector: Automatically set threshold.
- 9) Pulse-Pair Resolution: Typically <500 ns.
- 10) Automatic Digital Pole-Zero Adjustment: automatically.
- 11) Digital Gated Baseline Restorer: Computer controlled adjustment of the restorer rate (High, Low, and Auto).
- 12) Virtual Oscilloscope
- 13) Ratemeter: Count-rate display on MCA and/or PC screen.
- 14) Battery: Internal battery-backed up memory to maintain settings in the event of a power interruption.
- 15) Sample Ready In: Rear-panel BNC connector, accepts TTL level signal from Sample Changer. Software selectable polarity.
- 16) Selectable system gain setting : Coarse Gain : 1, 2, 4, 8, 16 or 32
Fine Gain : 0.45 to 1
- 17) Digital filter shaping time constants
 - Rise time : 0.8 us to 23 us in steps of 0.2 us
 - Flat Tops : 0.3 to 2.4 in steps of 0.1 us
- 18) Suitable for P-Type HPGe, N-Type HPGe and NaI detector with changeable Multi Pin connector type High Voltage supplier
- 19) Front panel LCD display to show system operation status
- 20) Single cable connection to detector

4. MCA Software and control computer

- 1) MAESTRO MCA Software
- 2) Microsoft Windows user interface for control and spectrum manipulation using the mouse or keyboard
- 3) Multi-Detector Interface (MDI)
- 4) Control computer based on the intel skylake processor and 24" color LCD monitor for controlling the spectrometer

D. Remarks

1. The Seller shall be responsible for installation of the system.
2. The Seller shall conduct the performance test after final installation of the system, and the test results shall be approved by end-user and two year warranty shall be provided.
3. The Seller shall furnish the services of competent technical advisor(s) who shall provide technical advice, guidance and assistance in installation, testing and training of this equipment, as required for the placement of the equipment in successful operation by the Buyer's personnel.