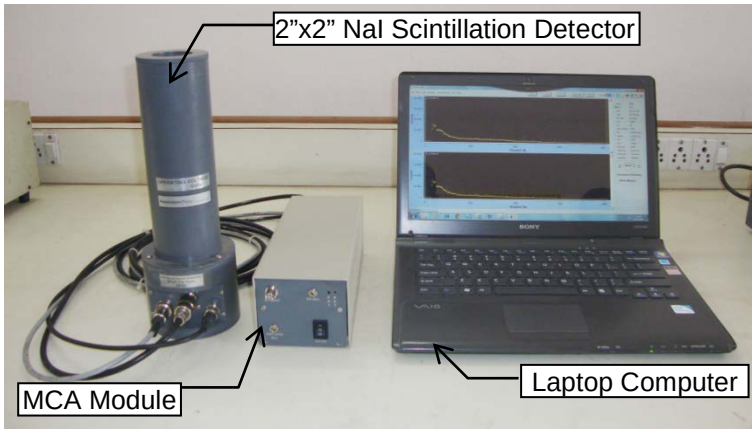
1K/8K MULTI CHANNEL ANALYZER WITH USB INTERFACE BUILT-IN HIGH VOLTAGE & SHAPING AMPLIFIER TYPE : MC1000

Technical Data



FEATURES:

- Compact, 1K /8K MCA with USB interface.
- Built-in High voltage (0-1200V) @ 0.5 amps with adjustable bias voltage to detector.
- Built-in shaping amplifier with adjustable gain arrangement.
- Excellent MCA performance in terms of resolution, INL & DNL, etc.
- Universal connectivity to a wide range of PCs and notebook computers
- Latest ANUSPECT Processing Software with the unit.
- Simple to install, operate and handle.
- Powered from 12V adaptor.
- Highly recommonded for university trading & research labs

Multi-Channel Analyzer (MCA) is an important part of nuclear spectroscopy system. The major requirement of MCA is for nuclear pulse height analysis in energy spectroscopy. The USB-MCA presented here, incorporates state of art technologies like FPGA, USB bus interface and precision analog electronics to meet the stringent system requirements in nuclear pulse spectroscopy. The resolution supported by the USB-MCA ranges from 256 channels to 1K/8K channels selectable via software, making it suitable for all spectroscopy applications of low resolution (e.g. NaI-PMT).

The USB bus interface of the MCA provides an excellent connectivity with most of the new PCs and lap-top computers meeting minimum requirements of PC. The ANUSPECT application software provided with the USB-MCA, seamlessly integrates with the hardware, featuring a range of standard functions required for analysis and acquisition.

Note: 1K/8K MCA & Anuspect processing software are manufuctured & supplied by NUCLEONIX based on BARC,Technology.

SPECIFICATIONS

HARDWARE FEATURES

- MCA resolution: 256, 512, 1K/8K.
- Spectrum memory: 128K bytes single port SRAM.
- Max counts / channel: 31 bit (2 Giga counts).
- Pulse processing time: 7 μs including ADC conversion time of 5 μs.
- Pile up rejection: Active high TTL input from spectroscopy amplifier.
- DNL: + 1%
- INL : + 0.05% F.S.
- MCA Input: Single channel, 0 to +10 volts.
- Built-in shaping amplifier with adj. gain features from rear panel.
- Built-in High Voltage module for detector bias (0-1200V @ 0.5A). Adjustability from rear panel trimpot.
  - MCA module dimensions : 240mm Length x 95mm Width x 85mm Depth
  - Weight :

Minimum Requirements for Installing Anuspect Software:

Operating system – Windows 7 or Higher Versions

CPU – Intel I3 or Above

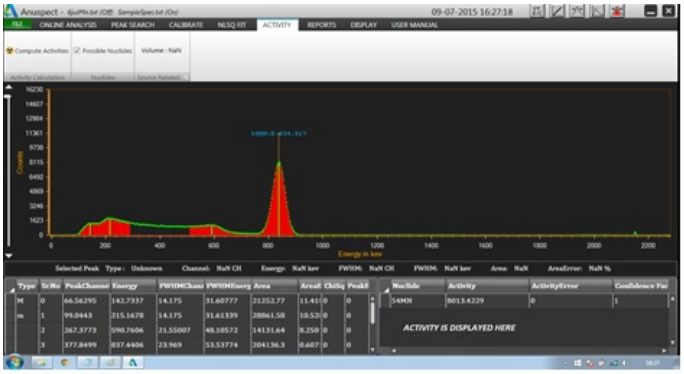
RAM – Minimum 2 GB

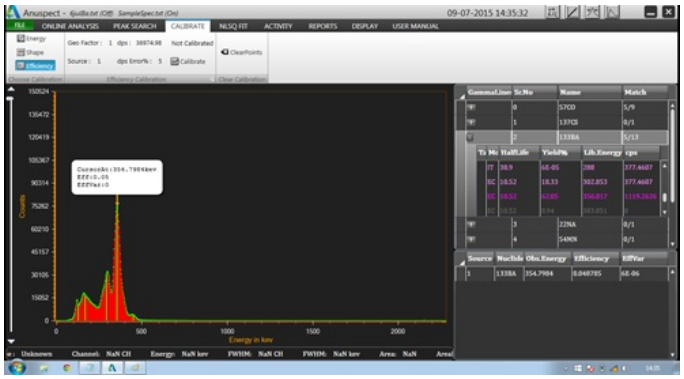
Graphics Hardware - Direct X 9.Oc or Higher

Input Power: (100-240V), A.C (47-63) Hz, A.C <20mA current, A.C Power adaptor (accepts above input & provides required +12V D.C @ 1A for the MCA module).

Software features:

- Ideal software solutions for advanced gamma spectroscopy applications.
- User Interface panel for setting Hardware MCA parameters.
- Spectrum display (Standard / Zoomed, Linear / Log Scale).
- Optimized peak search algorithm.
- Non – Linear least square fit of peaks with exponential tailed model.
- Option for Automatic addition of peaks at channels with high residue after fit based on user criteria.
- Energy, peak shape and efficiency calibration.
- Nuclide identification and activity calculation.
- Comprehensive report generation for analysis results.
- Inbuilt Standard nuclide library.





ACCESSORIES FOR INTEGRAL MCA MODULE MC 1000

Nucleonix Systems offers wide range of NaI Scintillation Detectors of different sizes both with flat & well type crystals, to meet the requirements of wide range of users for Gamma ray spectrometry measurements.

Scintillation detectors offered for teaching labs include 1"x1" & 2"x2" & 3"x3" NaI integral assemblies with built-in pre-amplifiers. These detector assemblies give excellent stability, superior performance & good resolution in the range of 8.0 to 9.5% for Cs-137.For teaching labs, we recommend 1"x1" or 2"x2" & 3"x3" NaI detector with this integral model.

SCINTILLATION DETECTORS

Important Specifications	Detector Type				
1. Flat/Well type NaI crystal	SD 151	SD152F	SD152W	SD153F	SD153W
2. Crystal Sizes	1" x 1"	2" x 2"	2" x 2"	3" x 3"	3" x 3"
3. a. Flat crystal or	Flat	Flat	Well	Flat	Well
b. Well Size (applicable for well type detectors only)	Not applicab l	Not applicabl e	0.75" dia X 1.43" deep	Not applicable	0.656" dia X 2.063" deep
4. Resolution (Betterthan)	8.5 %	8.5%	9 %	8.5%	9 %
5. Photo multiplier	R6095 of Hamamatsu or its equivalent	EMI 9857 or 9266 or its equivalent		EMI 9305 or its equivalent	
6. Pre-amplifier	Built – in	Built – in		Built – in	
7. Gain (Approx.)	25	25		25	
8. Noise (RMS. referred to input)	Less than 50 μV	Less than 50 μV		Less than 50 μV	
9. Operating Voltage	600 to 900 V	700 to 900V		700 to 900V	
10. Out put	Positive Tail Pulse	Positive Tail Pulse		Positive Tail Pulse	
11. Output impedance	90 Ohms	90 Ohms		90 Ohms	
12. Power Requirement (Typical)	-12V @ 12 mA	-12V @ 12 mA		-12V @ 12 mA	

Important Note: All NaI Scintillation Detectors manufactured & supplied by Nucleonix systems, use integral assemblies of Saint Gobain who are world leaders.

GAMMA REFERENCE STANDARD SET
TYPE: GS 290

Gamma Reference Standard Set Type: GS290 consists of a set of FIVE Gamma sources evaporated and sealed on 25mm dia x 5mm plastic discs ranging from 100KeV upto 1.33MeV energies with activity in the range of 2 to 5 micro curie. A reference chart for this is given below. The accuracy of these sources is in the range of +/-10%. All these disc sources are enclosed in a neatly polished wooden box.

Isotope	Energy MeV	Nominal	Half
Co-57	0.123	2-5 ci	273 Days
Ba-133	0.36 (Main)	2-5 ci	7.5 Years
Na-22	0.511; 1.280	2-5 ci	2.6 Years
Cs-137	0.662	2-5 ci	30 Years
Co-60	1.17; 1.33	2-5 ci	5.3 Years