Digital spectrometer DS100

MADE IN JAPAN

Spectroscopy within high-voltage power supply and preamp power

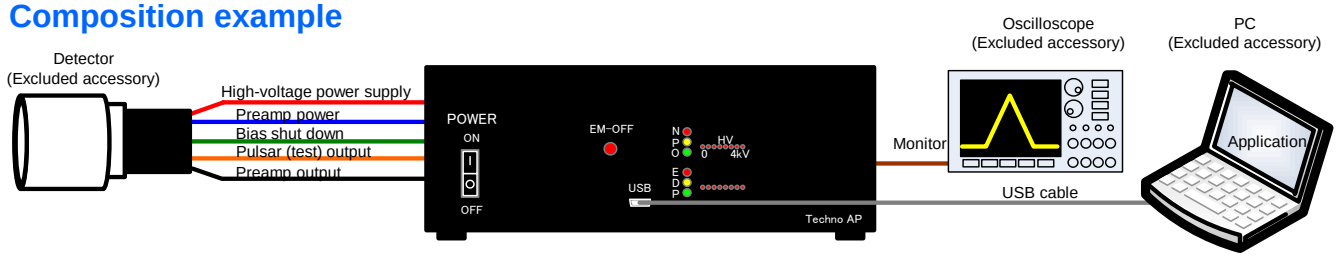
The high-voltage power supply, preamp power, and MCA (Multi Channel Analyzer) are required for measurement using the radiation detector. DS100 is all-in-one digital spectrometer which has high-voltage power supply, preamp power, and MCA. Preamp signal of the detector is directly input to the DS100, and the digital signal processing is processed a high-speed ADC (100MHz・14Bit) and highly-integrated FPGA. The measurement data will be transferred to the PC via USB connection.

External (Front)

External (Rear)

- **Intended detector** — **Semiconductor detectors (Ge, CdTe, Si)**
  Scintillation detectors (LaBr3(Ce), NaI(Tl), CsI(Tl)), etc.
- **High-voltage power supply** — **Output voltage ±0～4000V**
- **Preamp power** — **±12V, ±24V (NIM-standard)**
- **Resolution (Example)** — **1.7keV@1.33MeV (Ge semiconductor detector)**
  2.8 ～ 3.5%@662keV (LaBr3(Ce) scintillation detector)
- **Throughput** — **100kcps and over**
- **Multiple functions** — **Spectroscopy amp, Filter shape output DAC, Pulsar (test pulse) output DAC**
- **Interface** — **USB2.0**
- **Software** — **Included with application and instruction manual**

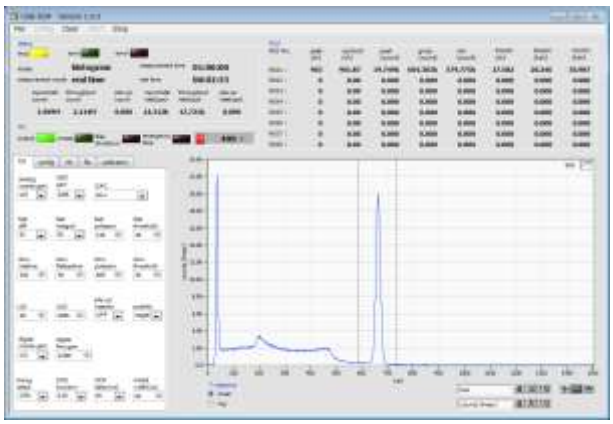
Composition example



Specifications

Intended detectors	Semiconductor detectors (Ge, CdTe, Si), Scintillation detectors ($LaBr_3$(Ce), NaI(Tl), CsI(Tl)), etc.
Analog input	1CH, ±1V range, input impedance 1kΩ
Gain	Coarse Gain x2, x4, x10, x200, Fine Gain x0.5～x1.5
Sampling	100MSPS, resolution 14Bit
ADC GAIN	8K, 4K, 2K, 1K, 512 or 256ch
Digital processing	Trapezoidal Filter 0.1～16μs Baseline Restorer, Pileup Rejecter, Fine Gain
Interface	HV power supply SHV connector, D-sub 9 pin connector for Preamp power, BNC connector for bias shut down, BNC connector for filter output wave profile, BNC connector for preamp output, BNC connector for pulsar output
High-voltage power supply	0V to ±4000V (Maximum 1.0mA), ripple <20mVp-p
Preamp power	±12V,±24V (NIM-standard)
Interface	USB2.0 or USB3.0
External dimensions, Weight	240(W) x75(H) x210(D) (Unit: mm) 2800g
PC requires	Windows 7, Display: WXGA and over, USB 2.0
Environmental condition	Operating temperature 0～40℃, No dew condensation
Power supply	AC240V, 0.3A max
Accessory	USB cable, Application, Manual, AC power cable

Application



($LaBr_3$(Ce) detector and using Cs-137 radiation source,
Peak spectra of γ-ray @662keV and Ba-Kα ray @30keV)

Control of high-voltage power supply, Maximum eight different ROI setting up, Displayed count rate

*Images is for illustration purpose.
*Please note that contents may change without prior notice.

TechnoAP

Design and fabrication of electronic circuit associated with measurement control and radiation measurement

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Updated on 2017/03/30