

APU101G / APU101S

A compact digital spectrometer unit integrating a digital MCA, high voltage power supply, and preamplifier power supply. It directly processes the detector preamplifier signal, digitizes it using a high-speed ADC (100Msps, 16bit), applies trapezoidal filtering via FPGA to determine pulse peak values, and generates spectra. Measurement data is transmitted to a PC via Gigabit Ethernet. The high voltage power supply is rated up to $\pm 5000V$ (0.67mA) for G type or $\pm 4000V$ (1mA) for S type. Also included is updated spectrum analysis software capable of real-time updates.

Features

Suitable Detectors	Semiconductor Detector such as Ge, CdTe, Si etc. Scintillator Detector such as LaBr3(Ce), NaI(Tl) etc.
Energy Resolution	1.6~2.2keV@1.33MeV, Ge Semiconductor Detector
Throughput	> 200kcps
Integral Non-linearity	< $\pm 0.025\%$ (typ.)
Differential Non-linearity	< $\pm 1.0\%$ (typ.)
Mode	Histogram, List, Wave
Spectrum Analysis Software	Gauss Fit Analysis, Peak Search Analysis, Dead Time Adjustment, Energy Correction, Half Width Correction

Specifications

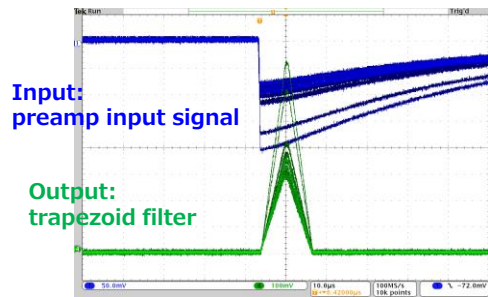
Analog input	1 channel by BNC connector, Range: $\pm 1V$, Input Impedance: 1 k Ω
Analog gain	Coarse Gain: x1, x2, x5, x10 Fine Gain: x0.5~x1.5
ADC	100Msps, 16bit
ADC Gain	16k, 8k, 4k, 2k, 1k, 512, 256 ch.
Digital Processing	Trapezoidal Filter Rise Time 0.1~0.120 μs (0.01 μs step) Flattop Time 0.05~2 μs (0.01 μs step) Timing Filter, Baseline Restorer, Pileup Rejecter, Auto-pole zero, Auto-threshold etc.
Digital Gain	Coarse Gain x1, x2, x4, x8, x16, x32, x64, x128 Fine Gain x0.3333~x1.0000
HV power supply	G-type 0V~ $\pm 5000V$ (max 0.67mA) S-type 0V~ $\pm 4000V$ (max 1mA) Ripple Noise 5mVp-p, SHV connector
Preamplifier power supply	$\pm 12V$, $\pm 24V$, D-sub9 pin connector
External Control	GATE Input, VETO Input, LEMO Connector
Communication I/F	Gigabit Ethernet, TCP/IP, UDP
Power consumption	12V (0.8A), AC power adapter
Dimension Weight	210(W)x45(H)x275(D) mm *attachment excluded, approximate 1800g
Application	Data Measurement Control, Spectrum Analysis Software



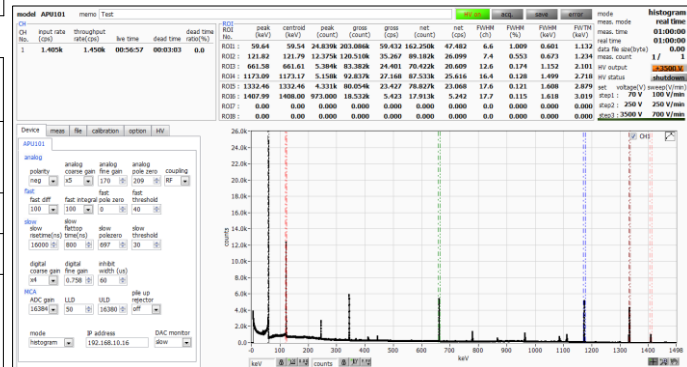
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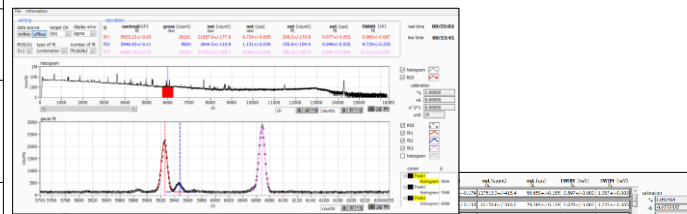
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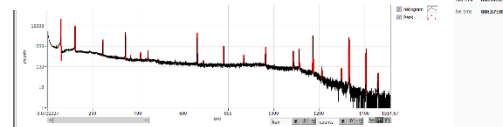
Preamp Input Signal & Trapezoid Filter (DAC output)



Histogram Mode



Gauss Fit Analysis



Peak Search Analysis

*Images is for illustration purpose.

*Please note that contents may change without prior notice.

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