

APU202

This compact, all-in-one desktop digital pulse processor integrates two digital pulse processors, a high-voltage power supply, and an MPPC power supply.

Simply connect the detector to perform power supply, signal processing, and data analysis with a single device, eliminating the need for external equipment.

With two detectors connected, real-time time-spectrum measurements are also possible.

For time pickoff, real-time polynomial interpolation on the FPGA provides high temporal resolution and improved differential linearity compared with linear interpolation. The calculation is completed within 100 ns.

Features

Applicable Detectors	Plastic Scintillator, LaBr ₃ (Ce), MPPC, Digital Pulse Detectors, etc.
Gain Settings	x0.5, x1.0, x1.5, x2.0, x2.5
Time Resolution	Coarse : 1ns Fine : 3.9ps LSB
Throughput	≥2 Mcps/channel
Modes	Histogram, List, Waveform
Options	LIST-WAVE, LIST-PILEUP-WAVE, Pileup-Reject



Front Panel



Rear Panel

Example of list data *TDC: 1digit = 3.9ps

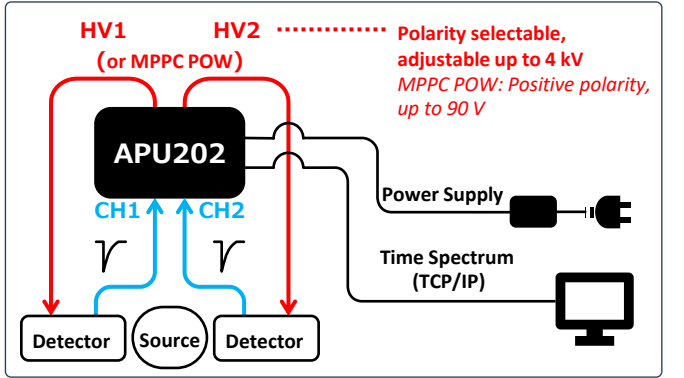
127bit						0bit
TOTAL	FALL	RISE	TDC	CH	QDC	
[15..0]	[15..0]	[15..0]	[53..0]	[3..0]	[12..0]	

Example of List Waveform Data

List Data	Wave Number	Header	Wave Data
[127..0]	[15..0]	[31..0]	[15..0] x Number of Waveform Points

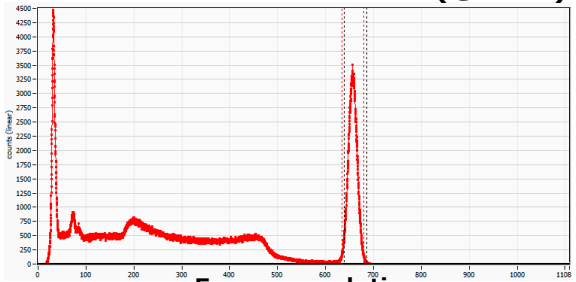
Specifications

Analog Input	2 CH, BNC, ±1 V, 50 Ω
Rise Time	≤2 ns
Sampling	1 Gsps, 14-bit
Digital Processing	CFD, TDC, QDC, PSD
HV Power Supply	Max. 4000 V (1 mA) × 4 CH, SVH MPPC: Max. 90 V (2 mA) × 2 CH, Circular Connector *Analog temperature sensor required for temperature compensation
External Connectors	LEMO × 4 for function expansion *Customizable depending on specifications
Communication	Gigabit Ethernet, TCP/IP, UDP
Power Consumption	12 V (2.5 A max.), AC adapter
Dimensions / Weight	210(W) × 35(H) × 250(D) mm* / Approx. 1,550 g *Excluding protrusions
Accessories	Data Measurement & Control Software



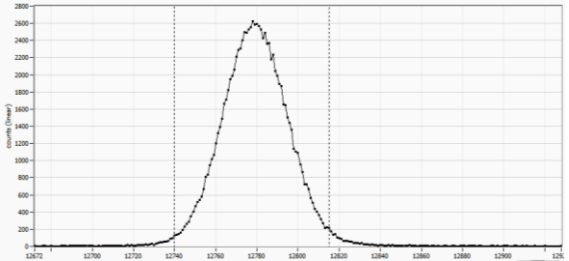
Time Resolution Measurement Setup

FWHM:3.0%(@¹³⁷Cs)



Energy resolution
1-inch LaBr3(Ce) Scintillation
Detector

FWHM:230ps(@²²Na,511keV)



Time resolution1-inch LaBr3(Ce) - LaBr3(Ce)

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