

# Time Spectrometer APV8702

3GHz ADC digital waveform processing

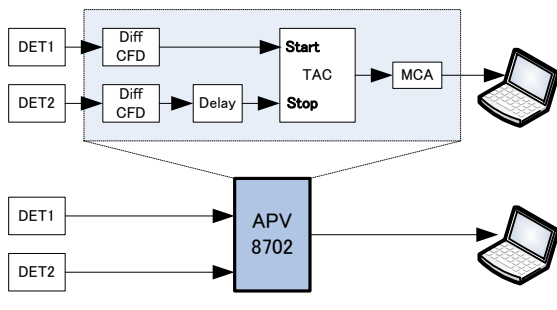
High time resolution  
High throughput

MADE IN JAPAN

VME

APV8702 is a spectrometer for time analysis equipped with high-speed 3GHz ADC with each CH. Conventionally, the time analysis needed a number of radiation measurement module, such as differential CFD, delay, TAC, MCA, etc. APV8702 has integrated them. APV8702 sample the preamplifier signal from detector by high-speed ADC. And then, it perform the time analysis at FPGA. An operation result is transferred to PC via Ethernet. APV8702 is available of measurement such as lifetime measurement of positron annihilation.

- **ADC** 2CH, 3Gsp/s, 8-bit
- **Time Resolution** 240ps (LaBr<sub>3</sub>(Ce) scintillator vs LaBr<sub>3</sub>(Ce) scintillator)  
19ps (Pulsar)
- **Coincidence** Window ±1ns ~ 20ns
- **Dead time** 7.5μsec (max.)
- **Analysis mode** Wave height, TAC, Waveform, (option)Pulse shape
- **Feature** Digital filter 1.5GHz / 1GHz / 800MHz / 500MHz  
Digital CFD (WALK, THRESHOLD, LLD, ULD)



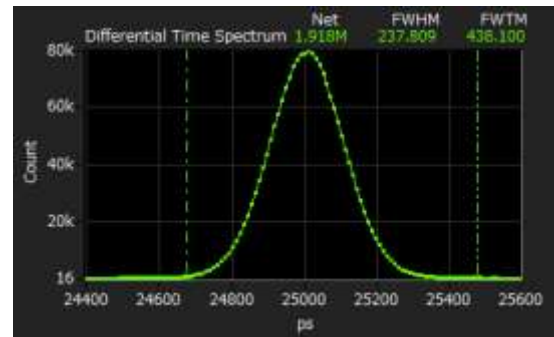
Measuring of combination of some module.

APV8702 has integrated each module.

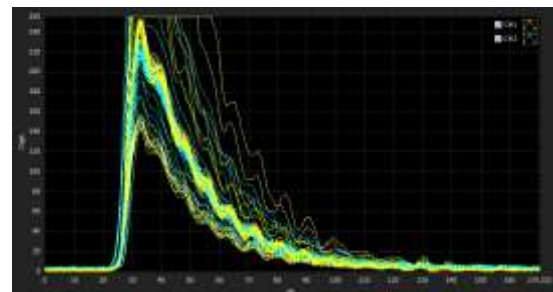


## Specifications

Analog input	2 channel
ADC sampling	Sampling 3GHz, Resolution 8bit, Freq.Range 800MHz
Rise time	0.5ns
Input range	256mVp-p / 340mVp-p
Offset	±20mVp-p
Filter	Digital filter 1.5GHz / 1GHz / 800MHz / 500MHz
Discriminator	Digital CFD(WALK, THRESHOLD, LLD, ULD)
Coincidence	Window ±1ns ~ 20μs
Dead time	7.5μs (max)
Analysis mode	Wave height, TAC, Waveform, (option)Pulse shape
Interface	Ethernet (TCP/IP)
Signal input terminal	SMA connector (CH1 and CH2), 50Ω
External I/O terminal	LEMO00 series connector (VETO input, GATE input CH1 and CH2 discriminator. output), SMA connector
External dimensions	80(W) × 205(D) × 30(H) (Unit: mm)
Total weight	About 400g
Environmental condition	Operating temperature: 5~35 °C
Main unit and accessory	Main unit, and application



TAC mode  
LaBr<sub>3</sub>(Ce) scintillator vs LaBr<sub>3</sub>(Ce) scintillator



Waveform mode

\*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

TechnoAP Co., Ltd.

+81-29-350-8011

+81-29-352-9013

2976-15 Mawatari, Hitachinaka-shi, Ibaraki, 312-0012, Japan

<http://www.techno-ap.com>

[order@techno-ap.com](mailto:order@techno-ap.com)

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