

Time Spectrometer APV8702

3GHz ADC digital waveform processing

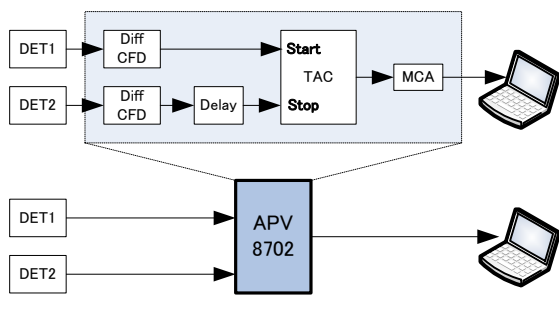
High time resolution
High throughput

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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, Sampling 3GHz, resolution 8bit**
- **Time Resolution** **240ps(LaBr₃(Ce) scintillator vs LaBr₃(Ce) scintillator)**
19ps(Pulser)
- **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)

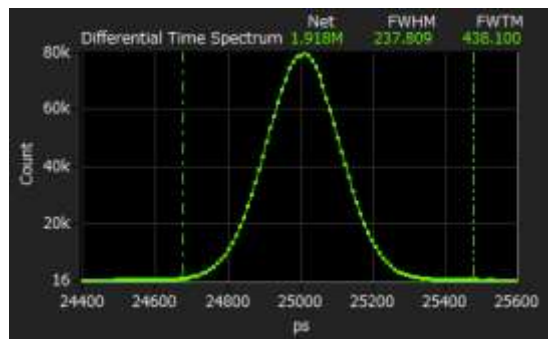


Measuring of combination of some module.

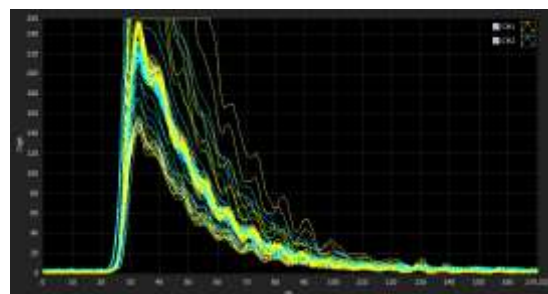
APV8702 has integrated each module.

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
LaBr₃(Ce) scintillator vs LaBr₃(Ce) scintillator



Waveform mode

*Images is for illustration purpose.

*Please note that contents may change without prior notice.

TechnoAP

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