Pulse Shape Discrimination

Ideal for Neutron & Gamma ray discrimination measurement in Liquid Scintillator

OPTION

20210518

Features

For the waveforms collected on the DPP board, integrate the specified ranges individually for **TOTAL** (Full range), **FALL** (Falling edge), **RISE** (Rising edge) *see the figure below, and send it as list data to the PC via the Ethernet forward. It can display a 2D histogram based on the integration result. The object of the vertical and horizontal axes of the histogram can be selected arbitrarily (eg. horizontal axis FALL / TOTAL, vertical axis FALL), it is also possible to extract a specified range of data and display a one-dimensional histogram.
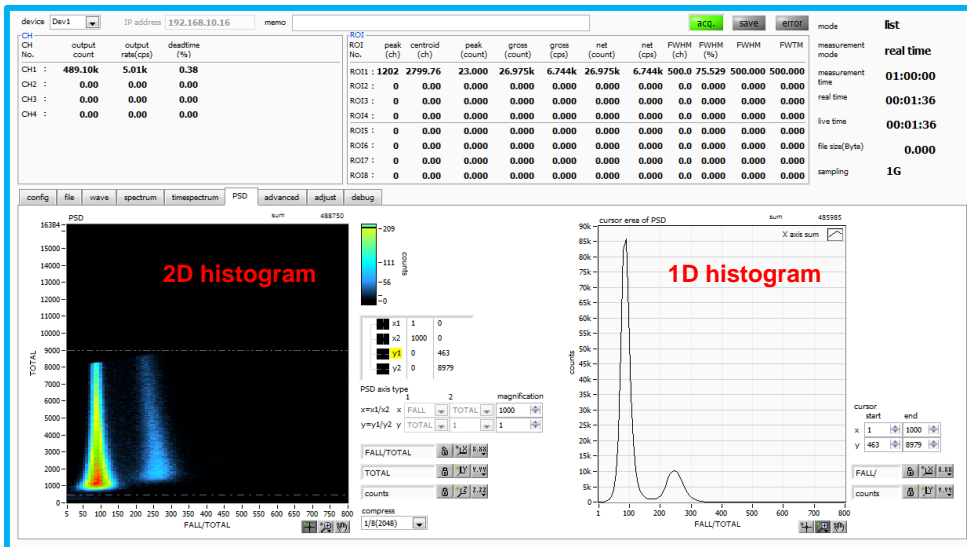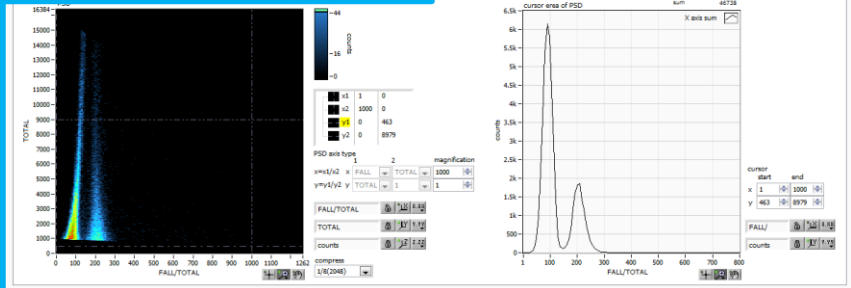

TOTAL(Full range)   **FALL(Falling edge)**   **RISE(Rising edge)**
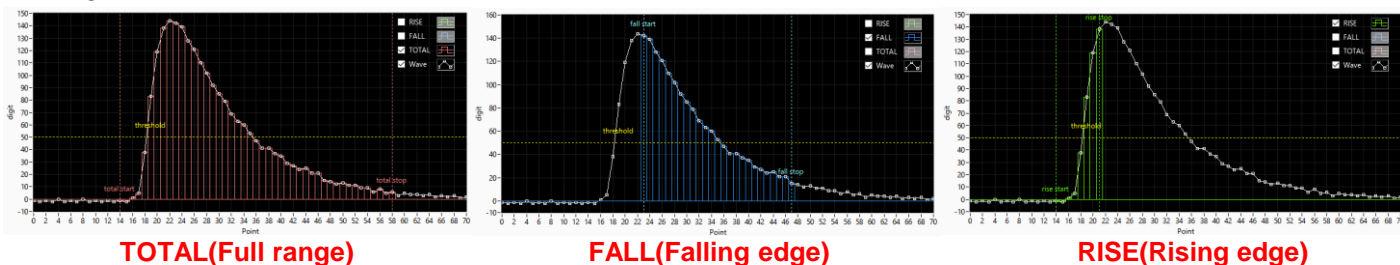
List data structure (1 event: 128 bits)

*TDC Time resolution Δt: 3.9 ps (1 Gsps)
7.8 ps (500 Msps)

	127	111	95	79	15	12	0
Event#1	TOTAL[15..0]	FALL[15..0]	RISE[15..0]	TDC[63..0]		CH#[2..0]	QDC[12..0]
Event#2	TOTAL[15..0]	FALL[15..0]	RISE[15..0]	TDC[63..0]		CH#[2..0]	QDC[12..0]
Event#n	TOTAL[15..0]	FALL[15..0]	RISE[15..0]	TDC[63..0]		CH#[2..0]	QDC[12..0]

Measurement example

2D histogram

1D histogram

In the case of stilbene scintillator (φ50.8×50.8mm, PMT:H3378-51)

[ENVIRONMENT]

Digital Pulse Processor:
APV8104-14
(1 Gsps, 4 Ch., 14-bits)

Radiation source:

Cf-252 (Californium)

In the case of Organic liquid scintillator (NE213, PMT:R4143)
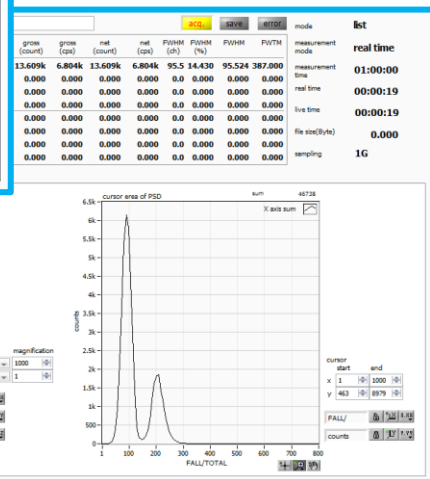
*Images is for illustration purpose.
*Please note that contents may change without prior notice.

Website

Manufacture of Radiation and Radioactivity measurement devices

TechnoAP Co., Ltd.

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

☎ +81-29-350-8011
🖷 +81-29-352-9013
✉ info@techno-ap.com