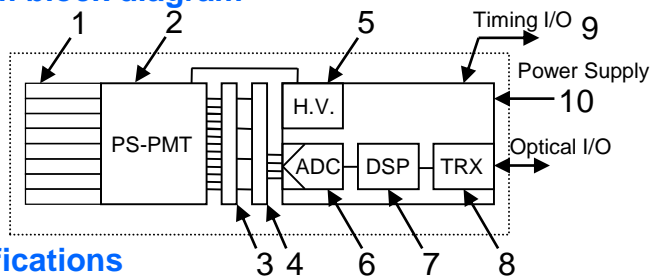


## Pixel scintillator system, on-board 256ch multi anode PS-PMT

### Overview

GIM256 is a gamma imaging module of pixel scintillator system equipped with PS-PMT. GIM256 is equipped with all hardware (scintillator, PMT, circuit, and etc.) required for gamma-ray measurement. Therefore, it can be gamma-ray energy spectra measurement and 2D gamma-ray imaging by supplying DC5V from outside. The measurement data is suitable for application of high-count, because it can be fast transfer by 1.25 Gbps bidirectional transceiver and light fiber. Additionally, it can apply to applications by using compound with a number of this module, such as PET, and etc.

### System block diagram



### Specifications

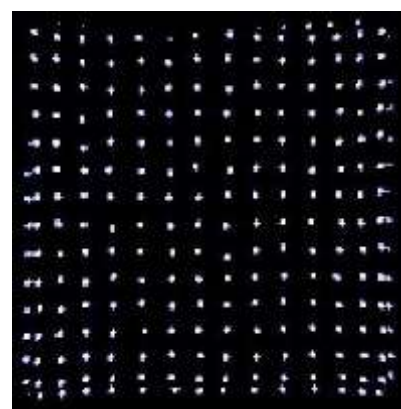
Scintillator	256 pixel scintillator
PMT	256ch multi anode PS-PMT (available area $\square$ 49mm)
Anode readout circuit	Resister matrix model, 4ch output
PMT preamplifier	Charge sensitive preamplifier, 4ch
PMT High-Voltage supply	0~1000V
ADC	4ch, 100MSA/s, 14bit
DSP	Trapezoidal Filter 0.25~8 $\mu$ s, Baseline Restorer, FineGain, Coincidence, 2D Centroid Calculation
Data transfer	1.25Gbps bidirectional transceiver (execution transmission speed 12.5MByte/s)
Timing I/O	PMT timing output (inversion, non-inversion, each 1 output) coincidence input, external clock input
Power	DC 5V 1A
External dimensions (Unit: mm)	56.5(W)x56.5(H)x213(D) *Without connector area
Weight	950g *1



Picture of the module  
Internal circuit (Front)  
Shield case (Back)

Density	7.39g/cm <sup>3</sup>
Effective atomic number	64
Maximum emission	412-416nm
Decay constant	35-36ns
Refractive index	1.81
Hygroscopicity	No

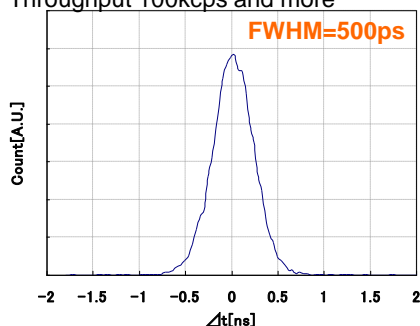
### Usage example by LFS scintillator



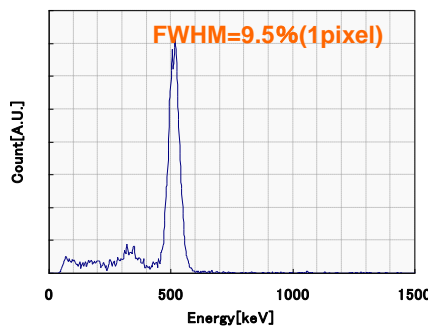
Raw 2D-Histogram Source <sup>22</sup>Na

### Performance<sup>\*1</sup>

- Position resolution 3mm
- Energy resolution FWHM= 9.5%(typ.)
- PMT timing signal time resolution (FWHM) 500ps @ <sup>22</sup>Na 511keV
- Throughput 100kcps and more



511keV vs 511 keV timing measurement



<sup>22</sup>Na energy spectra (coincidence gated)

\*1 In case of the using LFS:3mmx3mmx20mm16x16 array at the scintillator.

(The scintillator can be changed to LYSO, LSO, GSO, LGSO, BGO and etc.)

\*Images is for illustration purpose.

\*Please note that contents may change without prior notice.