

Comparison of detector output at ~1 THz

THz-wave Source: PHLUXi RTPO-1

Pump energy: 12 mJ from built-in Nd:YAG laser

Pulse width: 24 ns

THz-wave frequency: 1 THz

Detector: - PYD-1-D-A (Black diamond window, DC power supply) from PHLUXi

- A calibrated pyroelectric detector from competitor

THz wave from TPO is collimated by a Tsurupica cylindrical lens and focused by a Tsurupica lens.

To avoid environmental emissions, a black PE film is employed as a rejection filter.

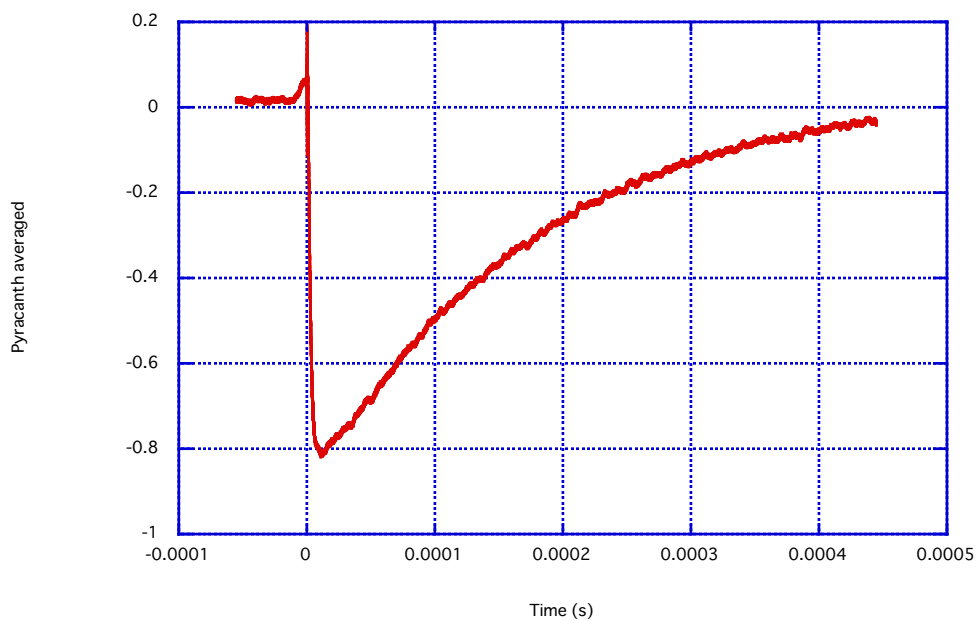


Fig. 1 Waveform of PYD-1-D-A detector

Response: fall time <300 us

Output >800 mV

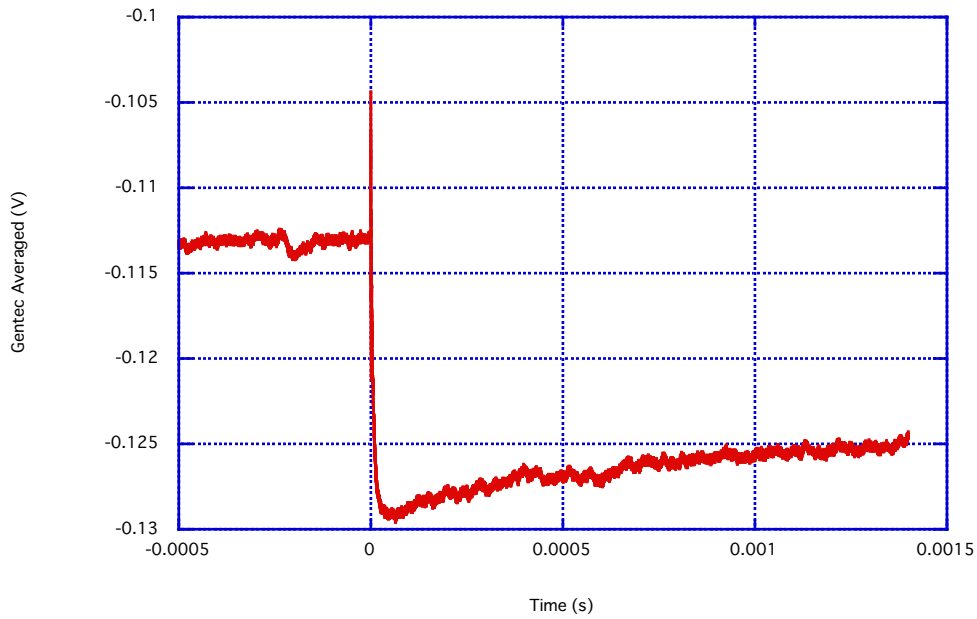


Fig. 2 Waveform of competitor's
 Response: fall time >10 ms
 Output 16 mV

Summary

	Pros	Cons
PYD-1	Fast response (fall time <0.3 ms, 90%~10%)	No Calibration provided
	High sensitivity (>10MV/J)	Small sensor (~ 1mm dia)
COMP'	Calibrated	Slow (response frequency 5 Hz)
	Large sensor (~5 mm dia)	Low sens