

AMPTEK Corporation X-Ray Detector Selection Guide

The XR100 or X-123 are available with Amptek's full range of X-ray probe assemblies.

1. The XR100 comes standard with an X-ray probe and preamplifier (pre-amplifier) only, so a PX5 digital pulse processor, multi-channel analyzer and power supply are required to form a complete system.
2. The X-123 already includes a digital pulse processor, multi-channel analyzer and power supply, making it a complete system; it is designed for OEMs and optimized for product portability.
3. XR100/PX5 is one of the most flexible combinations, designed for laboratory use.
4. The PX5 requires a matching X-ray probe and is compatible with other manufacturers' probe products.

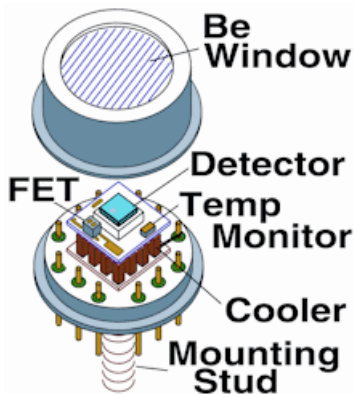


Figure 1. Xray probe assembly.



Figure2. Combined

configuration of XR100 and PX5. [Click here for information on specially priced detector systems.](#)



Figure 3.

Detector type: Detector area/thickness; optional thickness of beryllium (Be) window.	Energy resolution at 5.9 keV (half height full width, eV) Peaking time* ¹ . Peak-to-cost ratio (P/B)* ²	XR100 Product Number (matching PX5 required)	X-123 Product Number (system complete)
The following detectors are fully depleted and contain internal multi-layer collimators			
Si-PIN. 6mm ² /500µm. 0.5 or 1 mil.	145 - 165 eV. 32 µs; 6200/1.	XY-FSG32MD-G3SP (1 mil thick beryllium window) XY- FSG32MD-E2SP (0.5 mil thick beryllium window)	ZY-FSG32MD-G3SP (1 mil thick beryllium window) ZY- FSG32MD-E2SP (0.5 mil thick beryllium window)
Si-PIN. 13mm ² /500µm; 1 mil.	180 - 205 eV. 32 µs; 4100/1.	XY-FS432MD-G3SP (1 mil thick beryllium window)	ZY-FS432MD-G3SP (1 mil thick beryllium window)
Si-PIN. 25mm ² /500µm; 1 mil.	190 - 225 eV. 32 µs; 2000/1.	XY-FSJ32MD-G3SP (1 mil thick beryllium window)	ZY-FSJ32MD-G3SP (1 mil thick beryllium window)
SUPER SDD. 25mm ² /500µm 0.5 mil.	125 - 140 eV. 11.2 µs. 8200/1.	xy-gsj3amd-g2sp (0.5 mil thick beryllium window)	ZY-GSJ3AMD-G2SP (0.5 mil thick beryllium window)

*¹ : peaking time is approximately 2.4 times the forming time.

*² : The peak-to-bench ratio (P/B) is the ratio of the count rates at 5.9 keV and 2 keV energies.

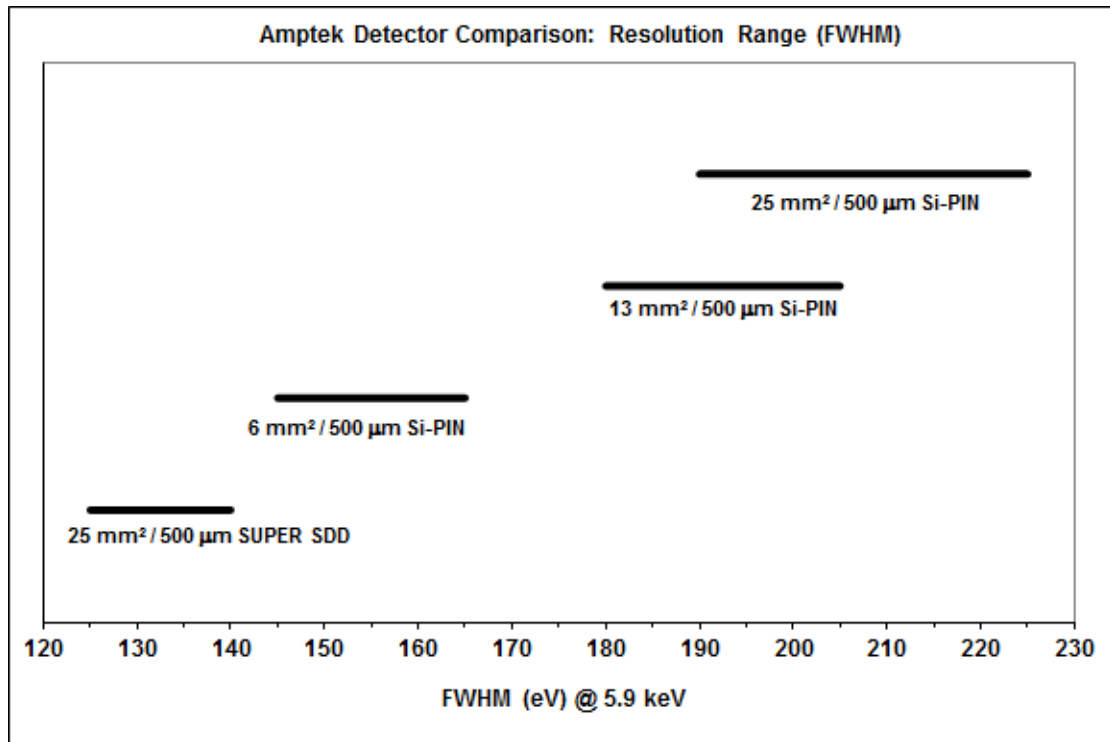


Figure 4. Energy resolution range of Amptek detectors.

When purchasing a detector, the user should consider not only the energy resolution of the detector, but also the effective detector area, thickness and peak-to-cost ratio.

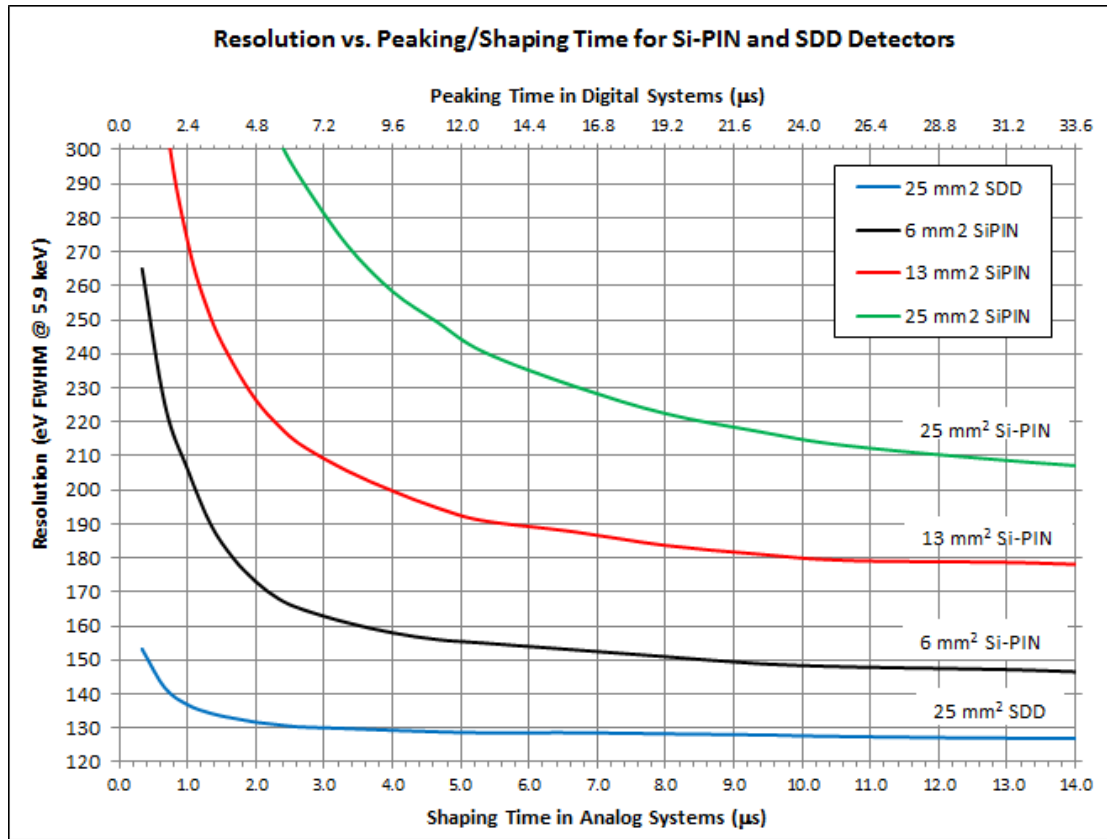


Fig. 5. Curves of energy resolution and peaking/forming time for Si-PIN and SDD detectors.