Amptek Spectrometer System Selection Guide

What is the difference between an XR100/PX5 and an X-123?

A complete system consists of a detector, preamplifier, digital pulse processor (shaping amplifier), MCA, power supplies, and control interfaces. Amptek provides two standard systems that accomplish this: the XR100/PX5 combination and the X-123. All Amptek detectors (SDD, Si-PIN, CdTe) can be configured in either of these systems.

XR100/PX5

The XR100 box includes the detector and preamplifier only and must be paired with the PX5 digital pulse processor, MCA, power supply, and control interface to be a complete system. The XR100/PX5 combination is the best performing and most flexible system and is designed for laboratory use. The PX5 can be used with other detectors. In addition, it has advanced features for experimentation such as analog out, auxiliary timing outputs and diagnostic signals, and a digital I/O connector containing the outputs of eight single channel analyzers and other signals. The PX5 is a high performance research grade pulse processor.
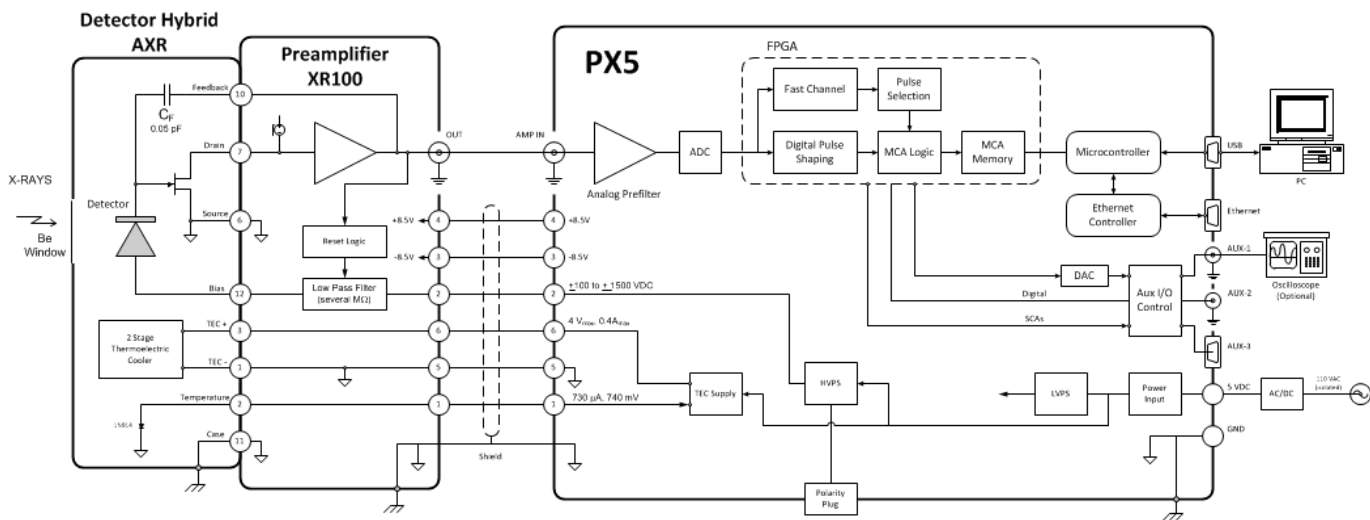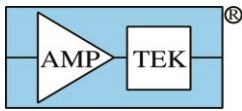

Figure 1. XR100/PX5 connection diagram.

X-123

The X-123 includes the detector, preamplifier, digital pulse processor, MCA, power supplies and control electronics all in one box. It is a complete system. The X-123 configuration is designed for dedicated systems, OEM, and custom applications where size, portability, and ease of use are driving requirements. The X-123 can only accommodate the installed detector. It has interfaces for input power, USB, RS232, Ethernet, and some limited I/O. It lacks advanced research level functionality such as on the PX5.
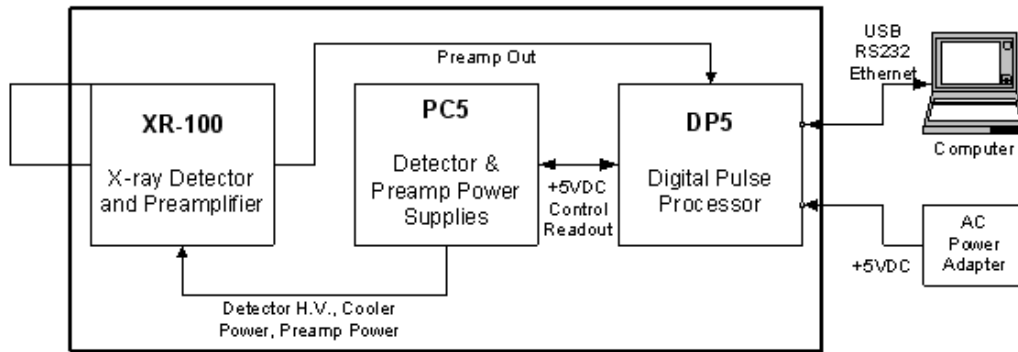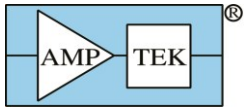

Figure 2. X-123 connection diagram. The X-123 uses the same detector and preamplifier found in the XR100. The digital processor inside of the X-123 is the DP5 and the power board inside of the X-123 is the PC5.

Comparison Matrix

	XR100/PX5	X-123
Detector	X	X
Preamplifier	X	X
Digital Pulse Processor	X	X
MCA	X	X
Power Supplies	X	X
Positive and negative detector High Voltage power supplies	X	
USB	X	X
RS232	X	X
Ethernet	X	X
Analog Out	X	
Aux Out	X	
Digital I/O (SCA's, Gate, etc)	X	X
Compatible with Other Detectors	X	
Software Controllable Pole-Zero	X	
Extended Gain Range	X	

Does Amptek provide other system options?

Yes, Amptek provides many systems which are optimized for OEM applications, with smaller preamplifiers and various connection options. These are described on Amptek's web page under "OEM Applications".

Amptek has variations on the XR100/PX5 and the X-123 for vacuum applications. These are also described on Amptek's web page.