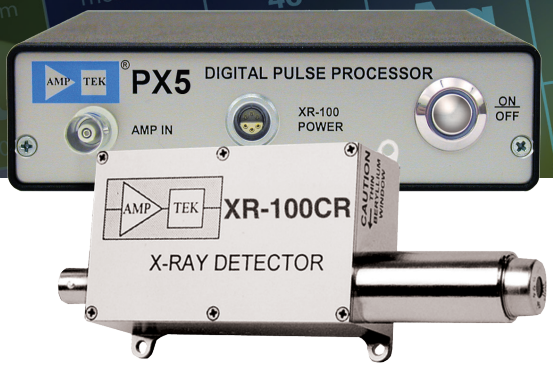
XR-100 & PX5:
COMPACT, HIGH-PERFORMANCE XRF DETECTOR

NO LIQUID NITROGEN SOLID STATE DESIGN



Amptek's XR-100 is a solid state, no liquid nitrogen XRF detector designed for ease of use and robust performance across diverse environments. Whether you need high-resolution analysis or rugged field reliability, the XR-100 adapts seamlessly to a wide range of applications.

The XR-100 is available in multiple configurations, each compatible with Amptek's advanced detector technologies:

- **FAST-SDD® detector** – High-resolution, high-throughput performance
- **Si-PIN detector** – Cost-effective option for standard XRF
- **CdTe detector** – High-energy detection up to 100 keV

Its aluminium housing doubles as a heat sink, ensuring stable detector performance even during extended operation. The XR-100 integrates the detector, preamplifier and all necessary power supplies into one compact module.

Why Choose XR-100?

High Performance at Low Cost

The XR-100 brings lab-grade performance into a compact, field-ready package **without the need for liquid nitrogen cooling**. This combination of cost efficiency, versatility and proven reliability has made the XR-100 the go-to choice for OEMs, researchers and industry professionals worldwide.

Key Features

- Detector, preamp and power supplies in one package
- Fully compatible with Amptek's PX5 DPP
- Industry-standard BNC connectors for effortless integration
- PX5: Digital Pulse Processor & Power Supply

The PX5 Digital Pulse Processor and Power Supply is designed to complement the XR-100 for a fully integrated detection solution.

It features:

- DC-powered via an AC adaptor
- Adjustable digital pulse processing (0.2 µs to 100 µs peaking time
- Built-in MCA functionality for real-time spectral analysis
- Supplies all required power to the detector, ensuring fast startup (<60 seconds)

Applications Across Industries

The XR-100 delivers precise, reliable results across a wide spectrum of fields:

- X-ray fluorescence (XRF) and elemental analysis.
- RoHS/WEEE compliance testing.
- Quality control and process monitoring
- Portable instruments and OEM systems.
- Space science (used for NASA's Pathfinder Mars Mission).
- Art, archaeology and environmental monitoring.
- Semiconductor processing, plating thickness measurement.
- Forensic investigations, jewelry analysis, and mining operations.
- Sulfur detection in oil and coal, smokestack emissions analysis.

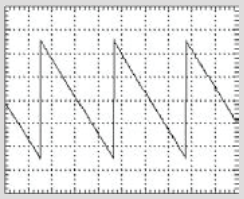
Proven in Extreme Environments

From analyzing Martian rocks during NASA's Pathfinder Mission to studying iconic artworks, the XR-100 has proven its accuracy and reliability in the most demanding applications.

PRECISION XRF DETECTION MADE SIMPLE

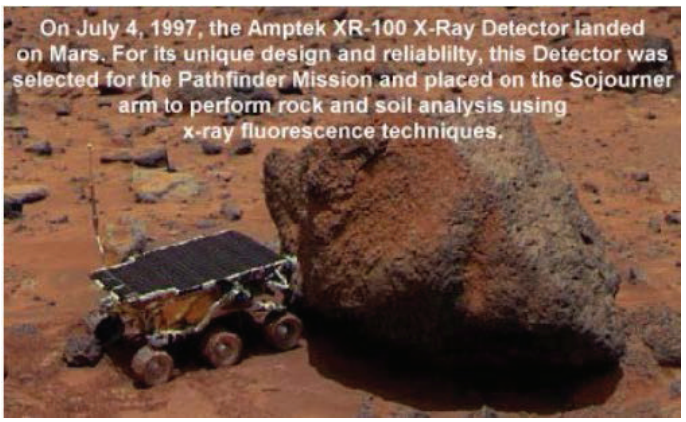
AMETEK

SPECIFICATIONS

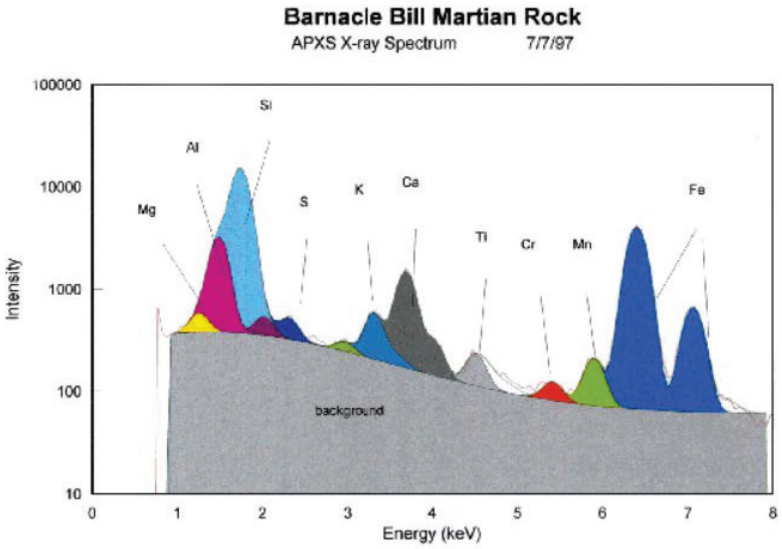
GENERAL	
TUV Certification	Certificate #: CU 72072412 01 Tested to: UL 61010-1: 2004 R7 .05 CAN/CSA-C22.2 61010-1: 2004
XR100 INPUTS	
Preamp Power	±8 to 9 V @ 15 mA with <50 mV peak-topeak noise.
Detector Power	+100 to +200 V @ 1 µA depending on detector type; <0.1% variation
Cooler Power	Current = 350 mA maximum Voltage = 4 V maximum with <100 mV peak-to-peak noise Internal temperature controller
XR100 OUTPUTS	
Reset Output Waveform The output of the XR100CR swings from +5 V to - 5 V. The reset period will vary with detector type and count rate. 	
Preamplifier Sensitivity Polarity Feedback	 1 mV/keV typical (may vary for different detectors) Negative Signal Out, 1 kΩ max. load Reset through the detector capacitance
Temperature Monitor Sensitivity	 <20 ppm/^{0}C (typical)
CONNECTORS	
Preamp Output	BNC coaxial connector
Power and Signal	6-Pin LEMO connector
Interconnect Cable	To PX5: 6-Pin LEMO to 6-Pin LEMO, 5 ft length
6-PIN LEMO CONNECTOR	
Pin 1	Temperature monitor diode
Pin 2	+ H.V. Detector Bias, +100 - 200 V max.
Pin 3	-9 V Preamp Power
Pin 4	+9 V Preamp Power
Pin 5	Cooler Power Return
Pin 6	Cooler Power: 0 to +4 V @ 350 mA
CASE	Ground and Shield

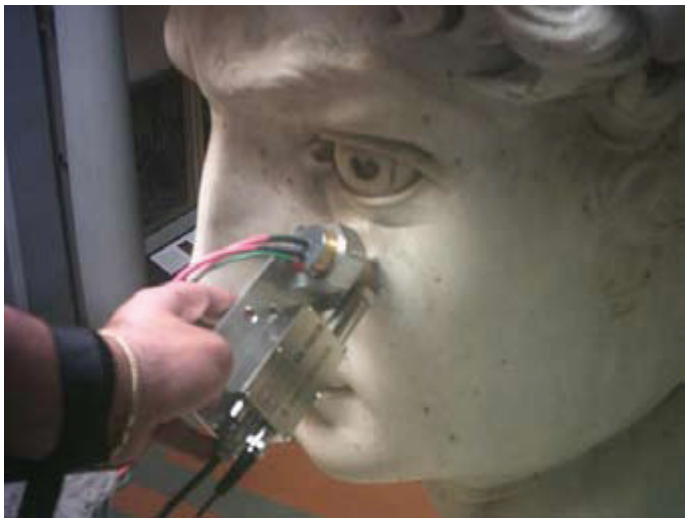
For full system specifications,
please see http://www.amptek.com/xr100cr.html

APPLICATIONS



First Rock Spectrum from Mars





XR-100CR Taking an X-Ray Fluorescence Spectrum of Michelangelo's David

AMPTEK INC.® 14 DeAngelo Drive, Bedford, MA 01730-2204 USA
+1 781-275-2242 Amptek.sales@ametek.com www.amptek.com

© 2025 Amptek Inc. All Rights Reserved. No. AMT-A00005 - August 2025