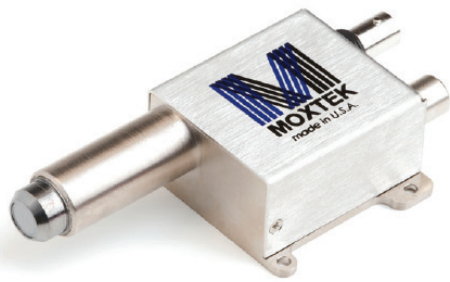


# XPIN®-BT x-ray detector



XPIN®-BT

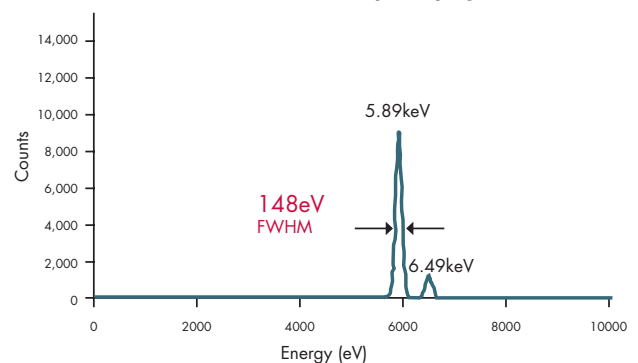
## Applications

- Portable/ Benchtop XRF
- RoHS/WEEE
- Light element analysis
- Metallurgy
- Alloy sorting
- Scientific research
- Nuclear monitoring
- Quality control
- Brand protection
- Coating analysis
- Plastic additive analysis
- Soil analysis
- OSHA compliance
- Contamination sampling
- Archeology
- Art authentication
- Forensic
- Mobile crime labs

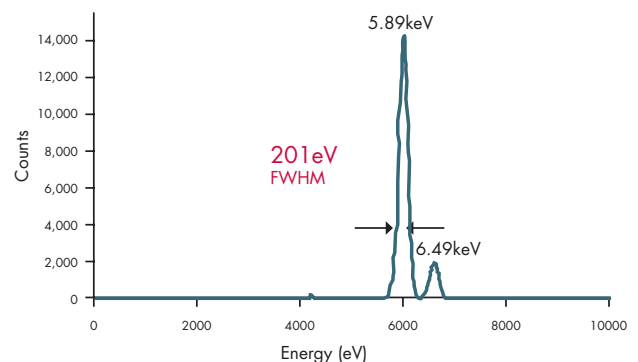
Features	Benefits
Si-PIN diode	Low cost
Small, compact design	Close coupling between detector and source, portable
Two-stage thermoelectric cooler	Fast cooling without liquid nitrogen
Stable resolution	Minimal calibration maintenance
Thin DuraBeryllium® windows	Light-element identification, corrosion resistant
Wide ambient temperature range	Industrial applications
Multi-layer collimator	Minimal stray peaks
Internal temperature control	No external temperature control required

The XPIN® detector is Moxtek's best performing Si-PIN detector. XPIN detectors use a silicon PIN diode, multi-layer collimator, and thin DuraBeryllium® window, achieving great resolution and x-ray sensitivity. The XPIN preamp provides a low-noise signal output to an analog or digital pulse shaping amplifier. The XPIN-BT package is ideal for benchtop and portable applications requiring simple mounting, automatic temperature control, and metal shielding.

**Example XPIN Spectrum (6mm<sup>2</sup>)**  
Fe<sup>55</sup>, 5.89keV @ -55°C, 8µs Shaping Time



**Example XPIN Spectrum (13mm<sup>2</sup>)**  
Fe<sup>55</sup>, 5.89keV @ -55°C, 8µs Shaping Time



# XPIN®-BT x-ray detector

## Detector specifications

Diode active area	6mm <sup>2</sup> or 13mm <sup>2</sup>
Diode thickness	625µm
Detector window	25µm thick DuraBeryllium®
Collimator material	Multilayer W/ Ni/ Cr/ Al
Energy resolution	6mm <sup>2</sup> : ≤ 190eV FWHM 13mm <sup>2</sup> : ≤ 230eV FWHM
Peak to background	6mm <sup>2</sup> : 3600/ 1 @1keV (typical) 13mm <sup>2</sup> : 3000/ 1 @1keV (typical)
Test conditions	8µs shaping time, MXDPP-200, -35°C, Fe55, 5.9 keV, 7000 CPS
Weight	140 grams (1.50" snout length)
Standard warranty	One year

## Preamp specifications

### Inputs

Detector power	+9V ± 5% @ 55mA, -9V ± 5% @ 35mA
Temperature control power	+5VDC
High voltage diode bias	+130 to +200VDC

### Outputs

Detector output signal	Negative sawtooth ramp with voltage swing +2V to -2V, (pulse reset < 20µsec)
Charge conversion gain	4mV/ keV typical
Temperature control	Ready signal (open collector)

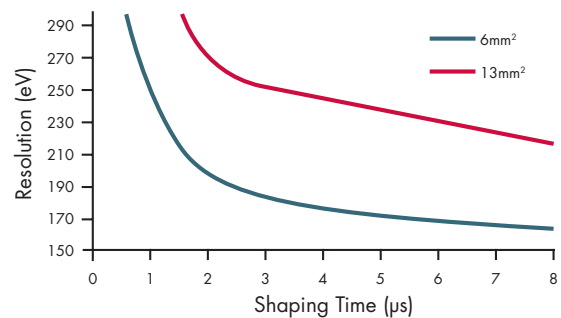
## XPIN-BT Preamp Pinout

Power connector (Lemo)		
Pin ID	Description	Set
1	Ready signal	Open collector
2	High voltage	+170 VDC
3	Detector power	-9 VDC
4	Detector power	+9 VDC
5	Temperature gnd	GND
6	Temp control power	+5 VDC
Shield	Detector ground	GND

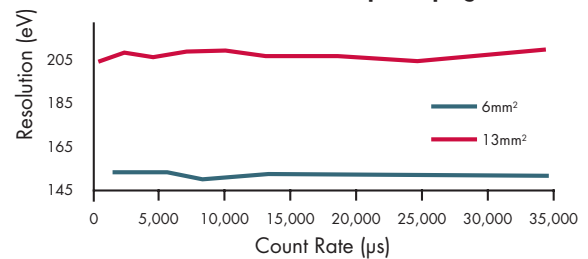
## Signal connector (BNC)

Contact	Description
Pin	Detector Signal
Shield	Signal GND

Resolution vs. Shaping Time (typical)  
Fe55, 5.8keV @ -55°C, 8µs Shaping Time



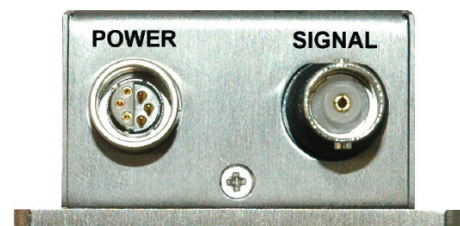
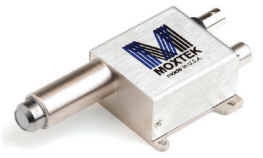
Resolution vs. Count Rate  
Fe55, 5.89keV @ -55°C, 8µs Shaping Time



ORDER CODE: XPIN - BT - XXX - 025 - 150 - TC.

Specify diode active area: ↑

- 006 6 mm<sup>2</sup> Diode
- 013 13 mm<sup>2</sup> Diode



XPIN-BT connectors  
(Actual size)