

XPIN<sup>®</sup>-BT

The XPIN<sup>®</sup> detector is Moxtek's best performing Si-PIN detector. XPIN detectors use a silicon PIN diode, multi-layer collimator, and thin DuraBeryllium<sup>®</sup> 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.*

## Applications

### Portable/ Benchtop XRF

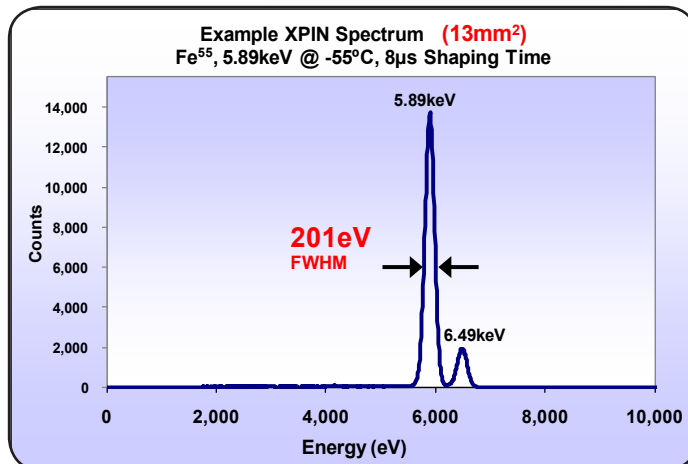
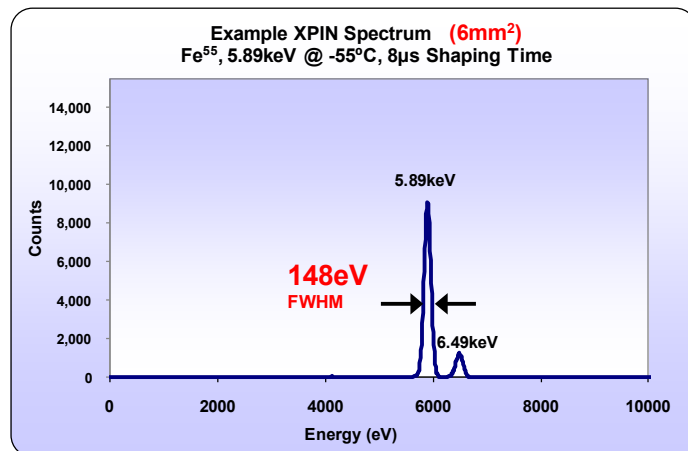
- RoHS/WEEE
- Light element analysis
- Metallurgy
- Alloy sorting
- Scientific research
- Nuclear monitoring
- Quality control
- Brand protection
- Coating analysis
- Plastic additive analysis
- Soil analysis
- OSHA compliance
- Contamination sampling
- Archeology
- Art authentication
- Forensic
- Mobile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

## Standard Package Includes:

### XPIN-BT Detector

- Vacuum sealed detector module
- DuraBeryllium<sup>®</sup> window
- Ultra-low noise Moxtek JFET
- Preamplifier with input/ output connectors
- Thick SiPIN diode
- Metal preamplifier housing
- Integrated temperature controller

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 <sup>®</sup> 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



## XPIN-BT

### 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,  
Fe<sup>55</sup>, 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

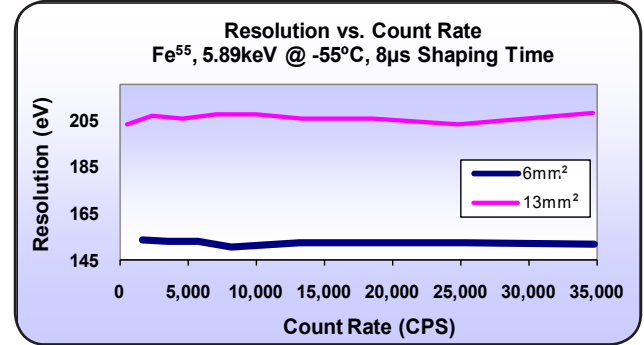
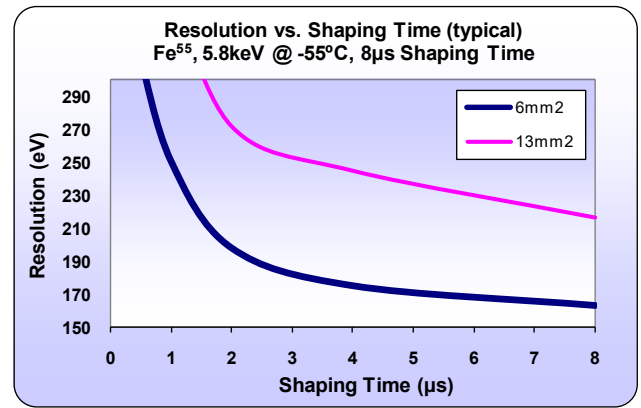
**High Voltage Diode Bias:** +130 to +200VDC

#### 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)



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

**Specify Diode Active Area:**

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

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



## 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

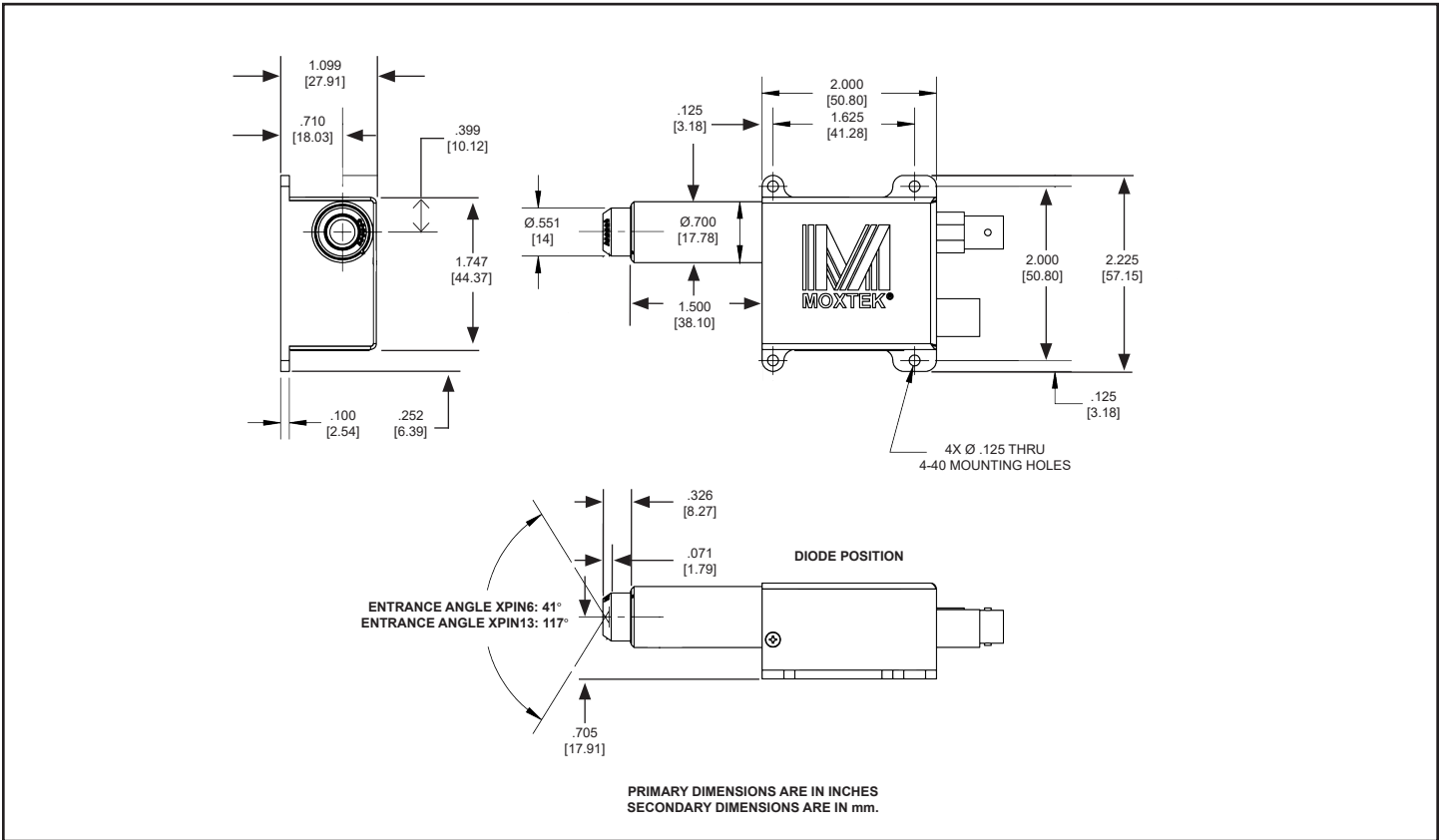
Signal Connector (BNC)	
Contact	Description
Pin	Detector Signal
Shield	Signal GND



XPIN-BT Connectors  
(Actual size)



# XPIN-BT Mechanical Drawing



XPIN-BT  
(Angle bracket sold separately)



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