



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

Standard Package Includes:

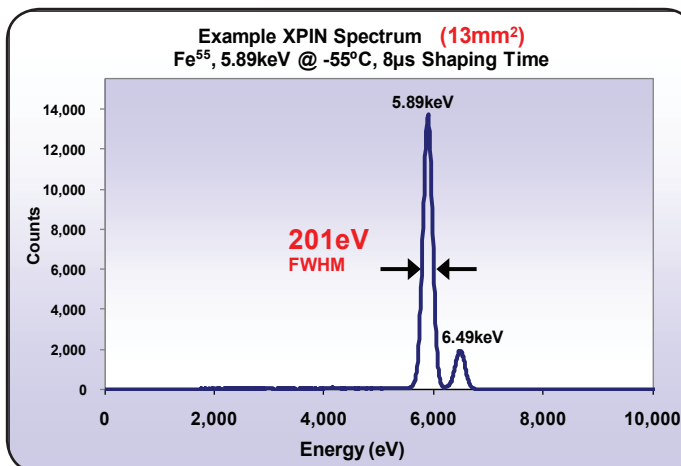
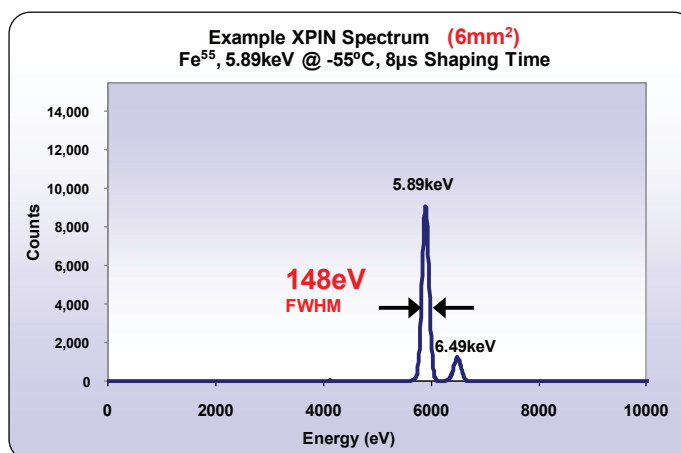
XPIN-BT Detector

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



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.*

| 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 |



XPIN-BT

Detector Specifications

Diode Active Area: 6mm² or 13mm²

Diode Thickness: 625μm

Detector Window: 25μm thick DuraBeryllium®

Collimator Material: Multilayer W/ Ni/ Cr/ Al

Energy Resolution: 6mm²: ≤ 190eV FWHM
13mm²: ≤ 230eV FWHM

Peak to background: 6mm²: 3600/ 1 @1keV (typical)
13mm²: 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

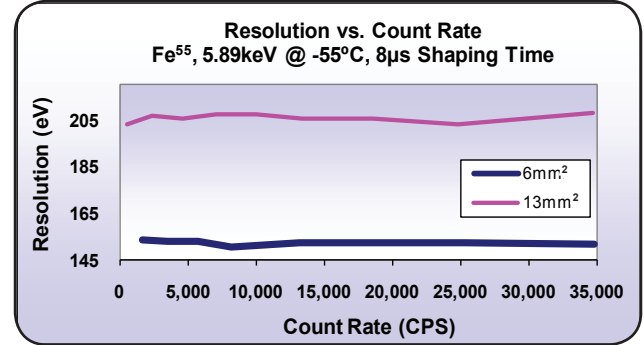
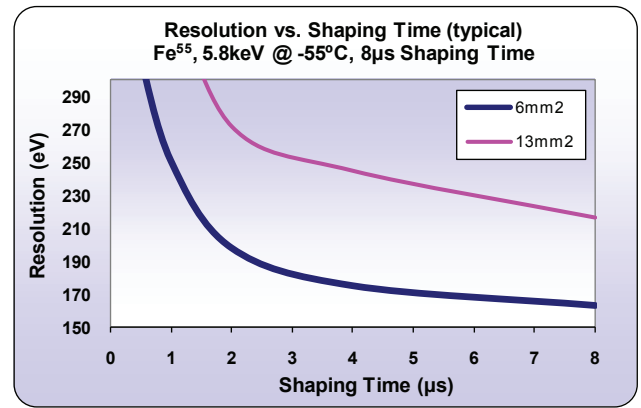
High Voltage Diode Bias: +130 to +200VDC

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)



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

Specify Diode Active Area:

- 006 6mm² Diode

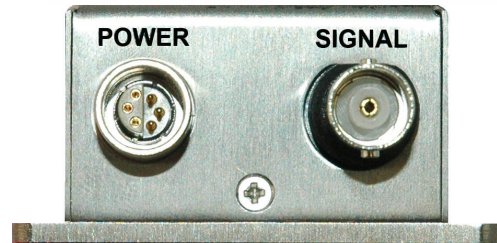
- 013 13mm² Diode



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 |

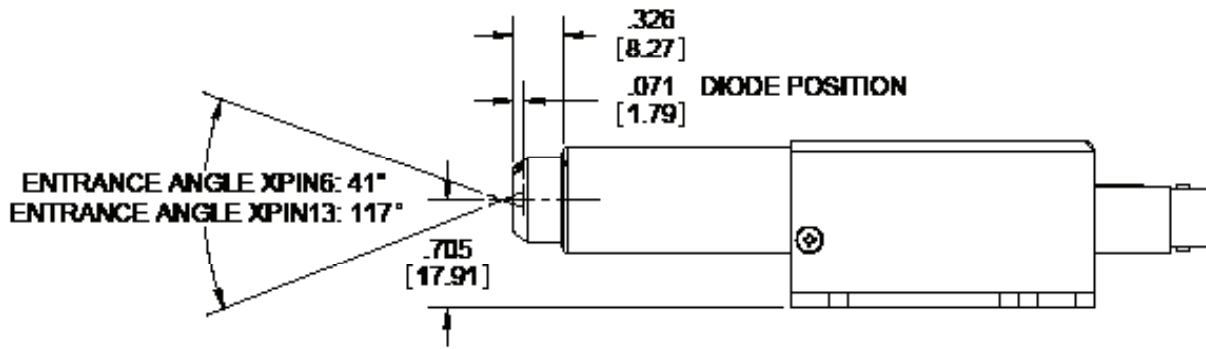
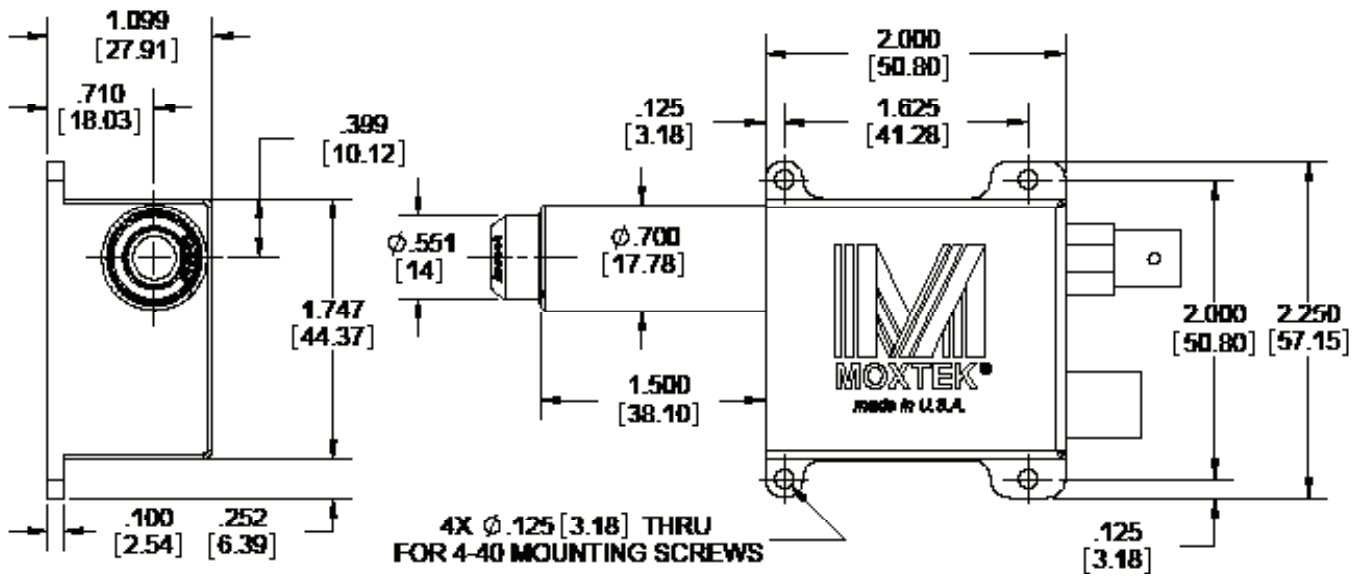
| Signal Connector (BNC) | |
|------------------------|-----------------|
| Contact | Description |
| Pin | Detector Signal |
| Shield | Signal GND |



XPIN-BT Connectors
(Actual size)



XPIN-BT Mechanical Drawing



PRIMARY DIMENSIONS ARE IN INCHES.
 SECONDARY DIMENSIONS ARE IN mm.

XPIN-BT
 (Angle bracket sold separately)



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DET-DATA-1001, Rev D
 Subject to technical change without notice