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-XT package is ideal for benchtop and portable applications where an integrated temperature controller is not required.

### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Si-PIN diode</td>
<td>Low cost</td>
</tr>
<tr>
<td>Small, compact design</td>
<td>Close coupling between detector and source, portable</td>
</tr>
<tr>
<td>Two-stage thermoelectric cooler</td>
<td>Fast cooling without liquid nitrogen</td>
</tr>
<tr>
<td>Stable resolution</td>
<td>Minimal calibration maintenance</td>
</tr>
<tr>
<td>Thin DuraBeryllium windows</td>
<td>Light-element identification, corrosion resistant</td>
</tr>
<tr>
<td>Wide ambient temperature range</td>
<td>Industrial applications</td>
</tr>
<tr>
<td>Multi-layer collimator</td>
<td>Minimal stray peaks</td>
</tr>
</tbody>
</table>

### Applications

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

### Standard Package Includes:

**XPIN-XT Detector**
- Vacuum sealed detector module
- DuraBeryllium® window
- Ultra-low noise Moxtek JFET
- Thick Si-PIN diode
- Preamplifier with input/output connector
- Optional detector mounts
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: 41 grams (with heat sink)
- 10 grams (without heat sink)
Standard Warranty: One year.

Preamp Specifications

Inputs

Detector Power: +5V ±5% @ 16mA, -5V ±1% @ 20mA
Cooler Power: 0 to +3.5V max, 0.56A max
High Voltage Diode Bias: +130 to +200 VDC

Outputs

Detector Output Signal: Negative sawtooth ramp with voltage swing +2V to -2V, (pulse reset < 20µsec)
Charge Conversion Gain: 1.25mV/ keV typical
Temperature Control: Manually controlled

ORDER CODE: XPIN - XT - XXX - 025 - P20- XX

Diode Active Area:
- 006 6mm² Diode
- 013 13mm² Diode
Mounting Option:
- 00 Preamp only
- AB Angle Bracket
- HS Heat Sink

XPIN-XT Connector Pinout

<table>
<thead>
<tr>
<th>Pin ID</th>
<th>Description</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TEC GND</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>TEC +</td>
<td>+3.5 VDC Max</td>
</tr>
<tr>
<td>3</td>
<td>Detector Power</td>
<td>+5VDC</td>
</tr>
<tr>
<td>4</td>
<td>Detector Power</td>
<td>-5VDC</td>
</tr>
<tr>
<td>5</td>
<td>Detector GND</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>Detector Signal</td>
<td>NA</td>
</tr>
<tr>
<td>7</td>
<td>Thermistor</td>
<td>NA</td>
</tr>
<tr>
<td>8</td>
<td>Detector GND</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>Not Connected</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>High Voltage</td>
<td>+170 VDC</td>
</tr>
</tbody>
</table>

XPIN-XT Mount Options

- XPIN-XT-AB: Angle bracket sold separately
- XPIN-XT-HS: Heat Sink sold separately

MOXTEK
XPIN-XT Mechanical Drawings

XPIN-XT-AB
(Angle bracket sold separately)

XPIN-XT-HS
(Heat Sink sold separately)