



Advantages of Pacific NDT's PiX Raven Powerline X-Ray Solution vs. Infrared for Powerline Inspection

Feature	Pacific NDT's PiX Raven X-Ray Solution	Infrared (IR) Technology
Principle	Uses X-rays to penetrate materials, providing internal imaging.	Detects infrared radiation to identify surface temperature variations.
Inspection Capability	Captures detailed internal images of splices, deadends, and other components.	Identifies hotspots and temperature anomalies on the surface.
Defect Detection	Detects cracks, corrosion, voids, and structural integrity issues within components.	Detects overheating due to high resistance.
Penetration Depth	Provides imaging of internal structures and dense materials.	Limited to surface or near-surface thermal anomalies.
Resolution	High-resolution imaging with precise defect identification.	Moderate resolution dependent on temperature contrast.
Environmental Conditions	Not affected by weather conditions like rain or fog.	Performance can be affected by environmental factors (e.g., rain, fog, extreme heat).
Accuracy	Direct and detailed; highly accurate for structural assessments.	Indirect; relies on temperature as an indicator of potential issues.

Real-Time Feedback	Immediate imaging for on-site defect evaluation and reporting.	Instant identification of temperature-related anomalies.
Portability	Lightweight and portable; designed for field use with rugged protection.	Suitable for quick assessments.
Durability in Harsh Conditions	Built for use in rugged environments with IP67-rated components.	Limited durability under extreme field conditions.
Applications	Ideal for inspecting splices, deadends, and internal defects.	Best for detecting overheating or surface-level thermal anomalies.
Limitations	Requires access to the target area for X-ray source placement.	Cannot detect internal structural defects or corrosion.
Training Requirements	Pacific NDT provides complete operator training for X-ray safety and image interpretation.	Training needed for basic IR camera operation.
Cost Efficiency	Long-term cost efficiency due to accurate defect detection and reduced failures.	Lower initial cost but <u>less effective</u> for deep structural assessments.

Key Takeaways

- **Pacific NDT's PiX Raven Powerline X-Ray Solution:**
 - Ideal for **internal inspections**, providing detailed imaging of splices, deadends, and structural integrity.
 - Unaffected by weather and capable of identifying issues invisible to surface-based technologies like infrared.
 - A critical tool for ensuring powerline safety and longevity.
 - Great tool for preventive maintenance of aging infrastructure.
 - Great tool for performing quality assurance on newly installed lines.
- **Infrared Technology:**
 - Best suited for detecting **surface-level temperature anomalies** like overheating connections.
 - Limited to identifying indirect indicators of potential issues.

To perform comprehensive **powerline inspections**, combining both technologies can provide a holistic approach: **PiX Raven X-ray for internal assessments** and **infrared for surface-level monitoring**. Product Link: <https://pacificndt.com/solutions/powerline-solution/>

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