

THIS AUTOMOTIVE COMPANY UTILIZED THE POWER OF ULTRASOUND TO MITIGATE OPERATIONAL RISKS AND ENHANCE SAFETY IN THEIR PRODUCTION FACILITY



THE PROBLEM

This automotive company's production facility faced a potentially catastrophic issue with serious implications for both safety and production costs. During an introductory product demonstration using UE System's UltraView Camera (Si124), this high-powered camera revealed several problems:

- **Air leaks:** The UltraView Camera (Si124) detected multiple air leaks within the facility, indicating a significant loss of energy and inefficiency in the production process.
- **Buzzing Sound:** A foreign buzzing sound could be heard from the equipment room, signaling the presence of partial discharge. Using the camera, this buzzing sound was traced back to a transformer within the electrical system.
- **Deteriorating Wire:** While investigating the transformer, a deteriorating wire was found leaning against a bus bar, causing the metal to melt together. This posed a severe safety risk, potentially leading to a fire that could disrupt production and safety protocols.
- **Operational Risks:** These issues created the potential for significant operational risks, including unplanned shutdowns, potential equipment failures, disruption of power, and safety hazards. The estimated cost of downtime in this facility is between \$300-\$800 per minute, making this a substantial financial risk.

THE SOLUTION

UE System's UltraView Camera (Si124) emerged as the solution to this company's critical issues. The camera, which excels at both air leak detection and partial discharge detection, offers several features that helped identify and diagnose equipment failures:

- **Enhanced Sensitivity:** The camera's increased sensitivity makes it capable of detecting partial discharge and air leaks with precision and speed.
- **Wider Scanning Area:** The camera's wider scanning area enables comprehensive coverage, ensuring that potential issues were not overlooked.
- **Instant Leak and Partial Discharge Detection:** The camera can promptly pinpoint the exact locations of compressed air leaks and partial discharge while displaying them on the screen in real-time, even differentiating between various types of partial discharge such as corona, tracking, and arcing.

THE RESULTS

After inspecting their electrical site using this camera, this company achieved the following results:

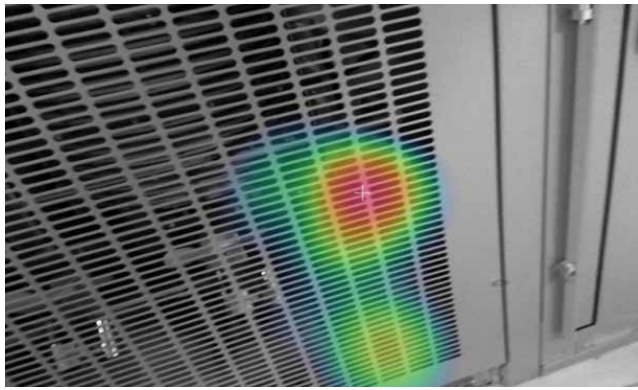
<p>TIMELY SHUTDOWN</p> <p>They promptly shut down its operations for 1.5 hours after discovering the critical issues within its facility. This quick response prevented a potentially hazardous event, such as a fire, and allowed them to address these issues in a timely manner.</p>	<p>COST-EFFECTIVE RESOLUTION</p> <p>The total cost of addressing these issues amounted to an estimated \$27,000, which is substantially less than the cost would have been if they hadn't taken immediate action.</p>	<p>AVOIDED DOWNTIME COSTS</p> <p>The transformer affected by the deteriorating wire was customized to the facility and was on back order for approximately 8 months. If left unaddressed, this would have resulted in a substantial amount of downtime with astronomical financial loss.</p>
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In conclusion, this company's utilization of the UltraView Camera (Si124) not only prevented a potentially disastrous situation, but it also demonstrated the significant advantages of proactive maintenance and early issue detection. This company's commitment to safety and production efficiency, coupled with innovative technology, helped them safeguard their operations and minimize substantially higher financial losses. This case study serves as a powerful example of how cutting-edge technology can enhance safety and reduce operational risks in industrial settings.

Moving forward, they will be performing more thorough and regular ultrasonic inspections in their potentially high-danger areas to ensure optimal efficiency and safety. While their reliability program is relatively new, they hope to continue expanding to prevent similar issues from occurring in the future. With so many different instruments, tools, and technologies available in the ultrasound industry, the UltraView Camera (Si124) continues to provide its customers with the easiest and fastest way to locate and identify compressed air leaks and partial discharge locations.

SUMMARY

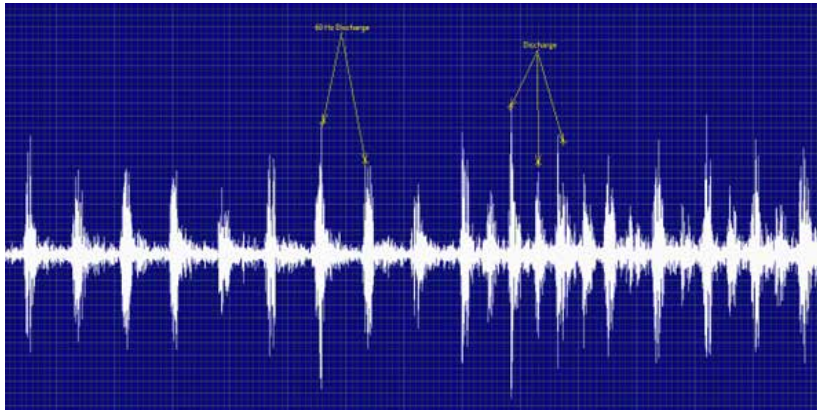
- This company was experiencing several issues in their electricity site including compressed air leaks, a foreign buzzing sound, and a deteriorating wire that was causing metal to melt together on the transformer. If left unattended, these issues could have serious safety and financial ramifications.
- Using UE System's UltraView Camera (Si124), this company was able to pinpoint the location of air leaks and confirm the existence of partial discharge in their facility almost immediately.
- After inspection, this company shut down its operations to complete repairs, costing them a total of \$27,000. Since their transformer is custom to the site and it is on backorder, they avoided having to lose \$300-\$800 per minute for approximately 8 months.
- This company now does a more thorough and regular inspection in these high-danger areas to ensure their facility is operating at optimal efficiency while also exceeding safety standards.



The UltraView Camera (Si124) report image displaying partial discharge locations on the transformer.



The UltraView Camera (Si124) report after the fix. There is no partial discharge located on the transformer.



This Time Series shows 60 Hz discharge indicating there is an electrical anomaly. Also, embedded in the sound file are discharges that indicate mechanical movement. From the analysis, the sound file confirms mechanical vibration and electrical discharge. Upon visual inspection by plant personnel, a cable was vibrating on the busbar and confirming electrical discharge at the point of contact of busbar and cable. Solved by separation of cable and reinsulating the wire.

If you look closely, you can see the damage that the wire was causing on the bus bar. The solution was to add additional insulation around the wire to separate it from making contact.

