

WESTCO Electrical & Equipment Corp. Case Study

Enhancing Predictive Maintenance and System Uptime in Cold Storage Facilities

A joint initiative between WESTCO and Satir leveraged advanced thermal imaging technology to detect and diagnose critical thermal anomalies in a cold storage facility, significantly improving system reliability and operational efficiency.

The project focused on utilizing the SATIR Hotfind S thermal imager to perform non-contact, non-destructive inspection, a key component of a Condition-Based Monitoring (CBM) program

The operational power consumption of cold storage facilities, analogous to domestic refrigeration systems, is susceptible to subtle, non-obvious factors that can induce a disproportionate surge in energy demand. The subject facility's case study demonstrated a pronounced anomalous increase in electrical energy draw directly attributable to one or more of these occult operational deficiencies. more of these occult operational deficiencies.

The Challenge: Outdated Monitoring and Safety Risks

-  **Invisible Heat Leaks:** The structure of the cold storage— the walls, ceilings, and the joints where panels meet— wore out, developing leaks that allow external heat to enter.
-  **High Financial Costs:** The main complaint of the cold storage facility was that their electricity was too strong and their consumption was high.
-  **Overworking Cooling System:** The cold storage drops below the required level because of the heat leak, which then triggers the blower to consume excessive electricity to cool the room down

IS YOUR FACILITY SUFFERING FROM HIGH UTILITY
BILLS BECAUSE OF UNSEEN THERMAL STRESS?

Contact WESTCO now to see how our Continuous Thermal Monitoring service and expert analysis can deliver the technical results you need. Secure your operational uptime, slash unnecessary electricity consumption, and gain the strategic advantage of early detection for all your critical systems.

The Solution: Satir Hotfind-S

The **SATIR Hotfind S**, one of our most popular Mid-Level thermography cameras, is a **384x288 Resolution High Performance IR Camera**. It works like a camera to perform non-contact inspections, and its advantage is that it allows diagnostics to be accomplished online, or during normal operation, preventing the need for a full-plant shutdown. Its **New Platform Upgrade, intelligent and integrated design** with **Innovative Hardware with built-in Memory** ensures **Superior Image—Comparable to High-End Cameras**.

The **Hotfind-S** produces **Sharper Thermal images** using **new imaging processing technology** to **reduce interference** and its **high speed processing engine with up to 50Hz dynamic real-time graphical output** produces a **smooth, no delay image**.

-  **Detects Unseen Flaws:** It utilizes a specialized camera to capture an **infrared image** that displays the heat distribution, making leaks and hot/cold spots visible. In the said cold storage, it detected a temperature measurement of -18°C in an area that should've been sealed to maintain -20°C .
-  **Spot Repair Targets:** The **thermal image** points out the exact location of the fault, serving as the basis for the client to know exactly what to repair.
-  **Planning and Minimizes Downtime:** The problems are detected early, giving clients time to plan their corrective action— perform preventive maintenance while the system is running, minimizing downtime.

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The Impact

Business Result:

-  **Minimized Downtime and Increased Uptime:**
The services allow for maintenance (PPM) to be conducted while the equipment is in normal operation, meaning the client doesn't have to shut down the entire plant.
-  **Reduced Energy Costs (Utility Savings):**
By identifying and repairing these leaks, the facility stops the cooling system (blower) from having to run constantly to fight the heat, which directly addresses the client's frustration with high electricity consumption.
-  **Regulatory Compliance and Safety:** The thermal scan is frequently a mandatory part of a Level 2 audit and is often a required test for securing building insurance and building permits.

Technical Result:

-  **Infrared Image and Visual Evidence:**
The primary output is a visual infrared image which allows the user to see the thermal distribution—specifically, where the temperature differs from the norm.
-  **Accurate Temperature Measurement:**
The test specifically measured a breach where the room was supposed to be sealed at -20°C , but the camera detected a spot on the wall or joint measuring -18°C , indicating that the thermal camera measured a minor 2°C temperature difference.

Conclusion

The utilization of Continuous Thermal Monitoring wasn't just a maintenance tool, but rather, it's a strategic investment—allowing the clients to shift from reactive repairs to proactive asset management. By unveiling the invisible thermal faults in critical infrastructures like cold storages, this service and solution directly addresses the dual threat of high energy costs and unplanned downtime.

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