Nippon Recycle Center: Detecting Fire Before It Starts

Bi-Spectral Thermal Monitoring for Rechargeable Battery Recycling

CHALLENGE

Rechargeable batteries recovered by Nippon Recycle Center are both a resource and a hazard: valuable for the rare metals they contain, and capable of igniting without warning. The company had already experienced small fires from lithium-ion cells, and its existing safeguards — **isolated battery storage linked to fire-suppression equipment** — only engaged once an incident was already under way.

Nippon Recycle Center needed a way to **detect a rising temperature before it became an emergency**, including during the unattended hours at its collection and sorting facility, and eventually on a new production line handling hazardous material directly. Imported thermal cameras on the market could not integrate cleanly with the Japanese equipment and in-house software already running the site.

SOLUTION

Working with **Konica Minolta Japan**, the company deployed **MOBOTIX M73 Thermal Cameras** configured for early temperature detection:

- **Bi-Spectral Imaging:** Thermal and visible video are captured together, so the source of a temperature rise is identifiable at a glance.
- **Granular Temperature Thresholds:** Up to 20 temperature events can be configured simultaneously, setting separate caution and danger levels within the same scene.
- **Configurable Detection Zones:** Areas prone to false heat signatures, such as reflective surfaces or direct sunlight, can be excluded without losing coverage elsewhere.
- **Direct Alerting:** Notifications reach the plant floor and the office by email and business chat the moment a threshold is crossed.

Key Data

Industry

Recycling & Resource Recovery

Customer

Nippon Recycle Center Corporation

Location

Osaka, Japan

Partner

Konica Minolta Japan, Inc.

Products

MOBOTIX M73 Thermal Cameras

Timeframe

2024 – 2025

MOBOTIX M73 thermal camera, installed at the collection & sorting facility

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BENEFITS

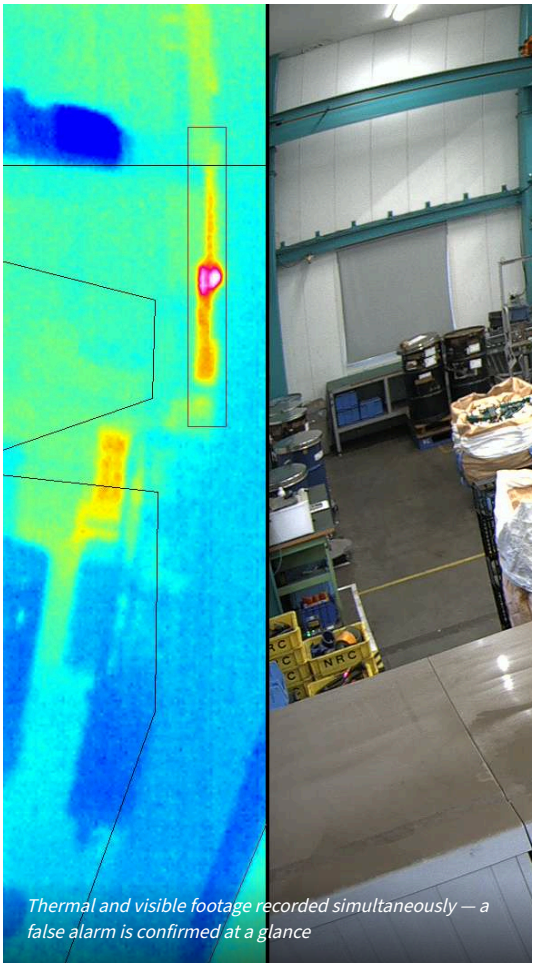
- **Prevention, Not Reaction:** A rising temperature is caught while it is still just a rising temperature, before there is anything to extinguish.
- **Round-the-Clock Coverage:** Monitoring continues through breaks and unattended hours, with alerts reaching staff immediately.
- **Hazards Made Visible:** Short circuits from disassembly errors and grinder friction heat — both invisible to routine inspection — are now detected as they happen.
- **False Alarms Resolved in Seconds:** Side-by-side thermal and visible images confirm instantly whether an alert is a real event or stray sunlight.
- **A Clean Safety Record:** No ignition has occurred since the cameras went live.

IMPLEMENTATION & OUTLOOK

- **Timeline:** One thermal camera installed April 2024 at the collection and sorting facility; two more added October 2025 on a newly built production line.
- **Support:** Konica Minolta Japan tuned detection zones on site, resolved early false alarms (excluding a sunlit window, taping a reflective crane surface), and produced documentation as needed.
- **Integration:** The production-line cameras connect directly to Nippon Recycle Center's own control software rather than running as a separate monitoring system.

FUTURE OUTLOOK

Nippon Recycle Center expects **electric-vehicle battery recycling** to become its main business. EV packs carry far more energy than the small-format cells the company handles today, and thermal monitoring is planned as part of that expansion from the outset — not added after the fact.



Thermal and visible footage recorded simultaneously — a false alarm is confirmed at a glance

Two thermal cameras added October 2025 on the new production line