



APPLICATION STORY

EARLY FIRE DETECTION

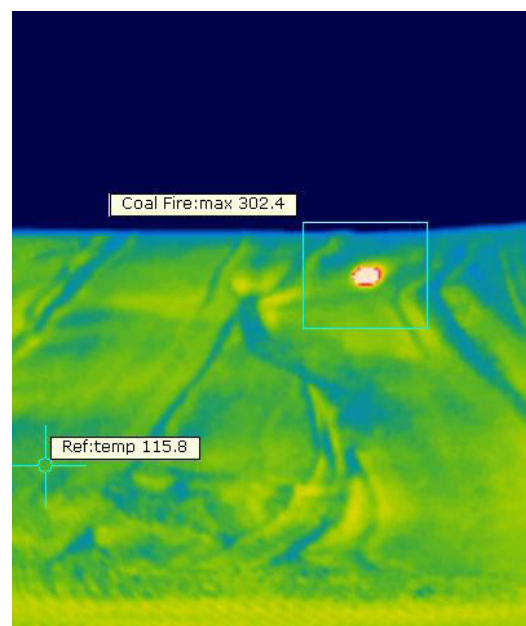
Industrial warehouses are critical to manufacturing, shipping, and even waste recycling, but they carry a heavy risk for fire. While most traditional protection systems rely on the presence of smoke, early fire detection solutions use continuous thermal imaging to identify abnormal heat build-up *before* flames or smoke appear. By enabling real-time monitoring, automated alerts, and faster intervention, organizations can take a proactive approach to fire prevention that reduces risk, protects critical assets, and maintains operational continuity.

Fires in industrial and commercial environments can escalate rapidly, causing extensive asset damage, operational downtime, and serious safety risks. Many companies try to protect their facilities with traditional fire protection systems designed to respond after a fire has already ignited. But Early Fire Detection (EFD) takes a different approach, identifying abnormal heat build-up before combustion occurs and enabling faster intervention for risk mitigation.

Detecting Fire Risk at the Source

When temperatures rise unchecked, materials can eventually ignite and spread quickly. Continuously monitoring assets with a thermal camera ensures temperature changes are caught early—long before smoke or flames are visible.

Flir thermal imaging cameras use non-contact infrared technology to detect and measure heat patterns across monitored areas. Unlike visible



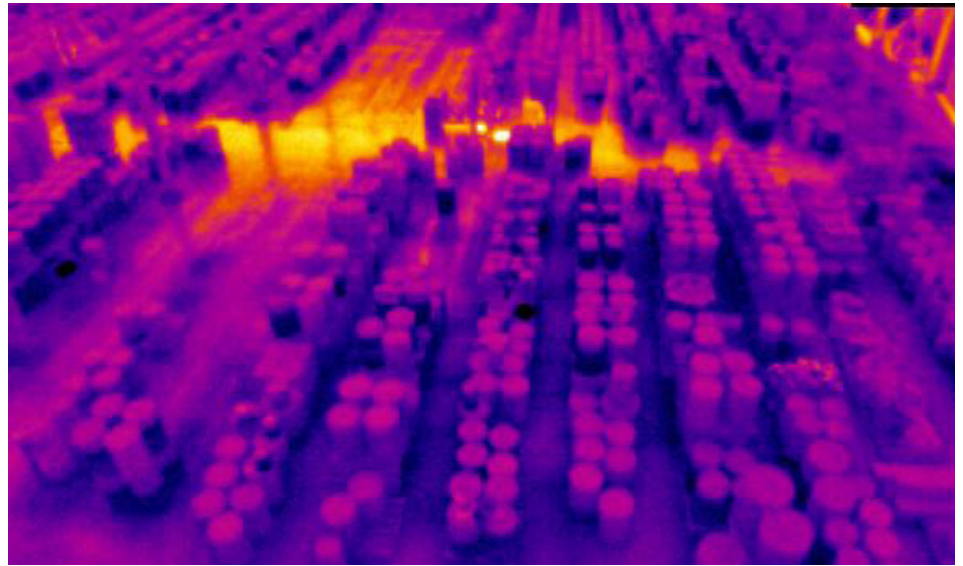
Fire spotted inside of a coal pile seen through a thermal imaging camera

cameras or smoke detectors, thermal cameras do not require lighting and can operate in complete darkness or visually obstructed environments. This capability allows facilities to monitor critical assets and high-risk zones around the clock, even in challenging conditions such as smoke, dust, or low visibility.

Continuous Monitoring for Rapid Heat Generation

The problem of rapid heat generation is common in the manufacturing, material handling, bulk storage, recycling, and energy production industries. Here, temperatures can rise unexpectedly due to mechanical friction, electrical faults, chemical reactions, or spontaneous combustion. Flir fixed-mount thermal cameras are designed to continuously monitor these areas and provide live temperature data at high refresh rates, helping identify abnormal heat trends before they reach ignition thresholds.

Using built-in analytics, Flir thermal smart cameras can isolate multiple regions of interest



Interior of a warehouse being monitored by a thermal imaging camera

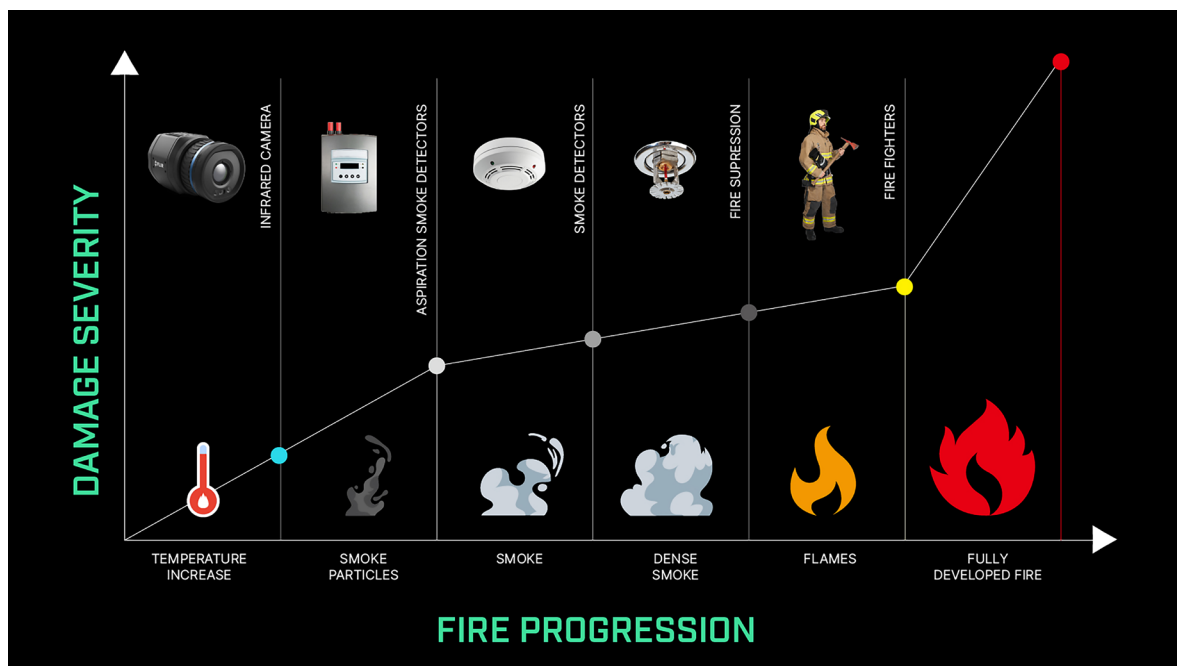
(ROIs) within a scene and report minimum, average, and maximum temperatures for each area. When temperatures exceed defined thresholds, the system can trigger alarms or notifications, enabling operators to respond immediately and prevent escalation.

Edge Analytics and System Integration

Flir early fire detection solutions combine thermal imaging with edge

computing, allowing analytics to be performed directly at the camera level. This reduces response time and supports real-time decision-making without relying on centralized processing. Cameras can be configured through a web-based interface, making it easier to tailor alarm conditions and measurement parameters to specific operational requirements.

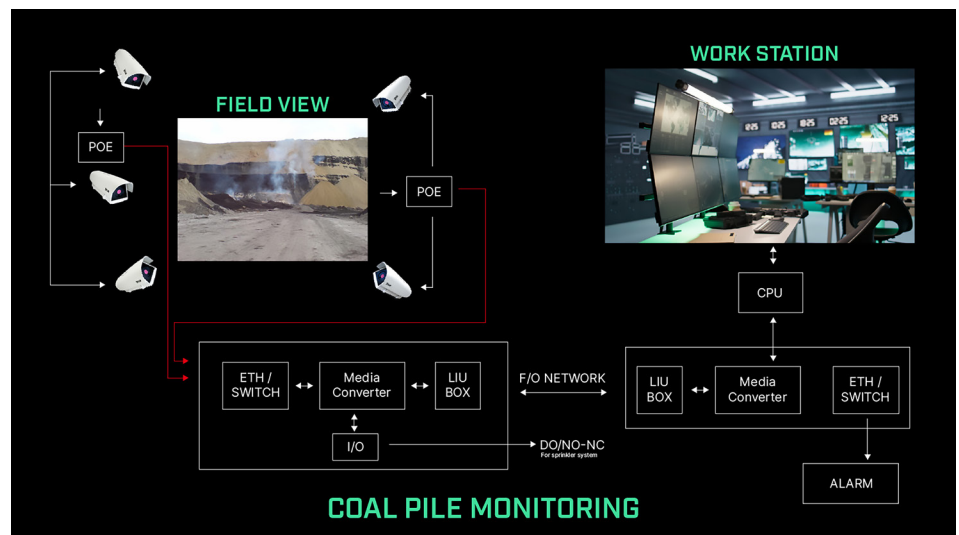
These systems also integrate with



existing industrial infrastructure. Flir thermal cameras support standard communication protocols and can connect to control systems, PLCs, or monitoring software to enable automated responses. For example, alerts can prompt operators to shut down equipment, isolate materials, or initiate corrective actions when early signs of overheating are detected.

Supporting Targeted Fire Response

When combined with fire suppression or extinguishing systems, thermal imaging can help guide response efforts with greater precision. By pinpointing the exact location of a hot spot, thermal cameras enable more targeted cooling or suppression, potentially limiting damage to surrounding materials. This contrasts with broad sprinkler-based responses, which may impact a larger area than necessary.



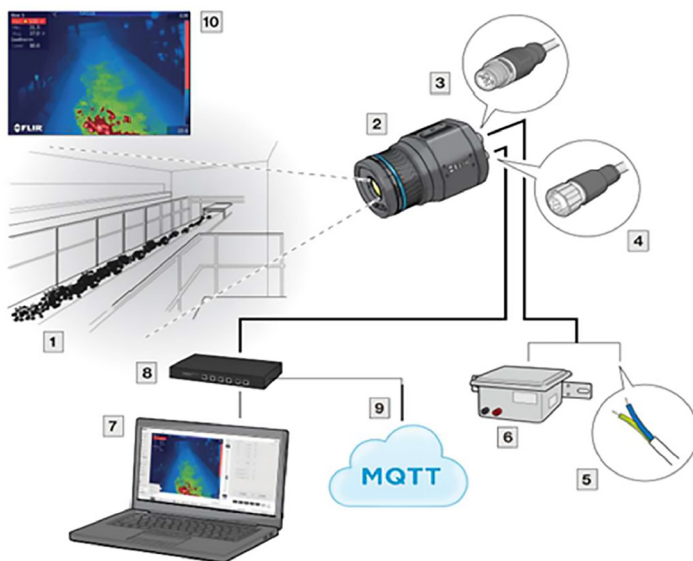
A Proactive Approach to Fire Prevention

Flir early fire detection solutions are designed for continuous, reliable operation in demanding industrial environments. With flexible field-of-view options, configurable analytics, and robust network connectivity, these systems support a proactive approach

to safety, asset protection, and operational continuity.

By identifying abnormal thermal conditions early, organizations can take action before heat turns into flame—helping reduce risk, protect assets, and maintain uptime through intelligent, continuous thermal monitoring.

To install solutions like these at your own business, learn more or contact an expert from [our partner Hi-Tech](#).



To learn more about solutions for early fire detection, please visit:
www.flir.com/instruments/fire-prevention



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Revised: 6/5/2026, 5 x Automation application notes_EFD 26-0374-INS