

# AI-powered smoke and fire detection system

Stop fires faster with AI-powered video security. Lumana transforms your existing cameras into proactive safety agents, identifying visible smoke and flames in seconds and delivering real-time alerts. Add optional Alarm Monitoring for live human verification and immediate emergency dispatch.



## How it works

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### Identify fire and smoke on any IP camera

- Standard IP cameras gain AI-powered fire and smoke detection, enabling rapid rollout and automated monitoring.
- Detect flames and smoke plumes in real time, whether indoors or outdoors, so teams can immediately act.
- As low as 2 second detection-to-alert time for faster response when every second matters.

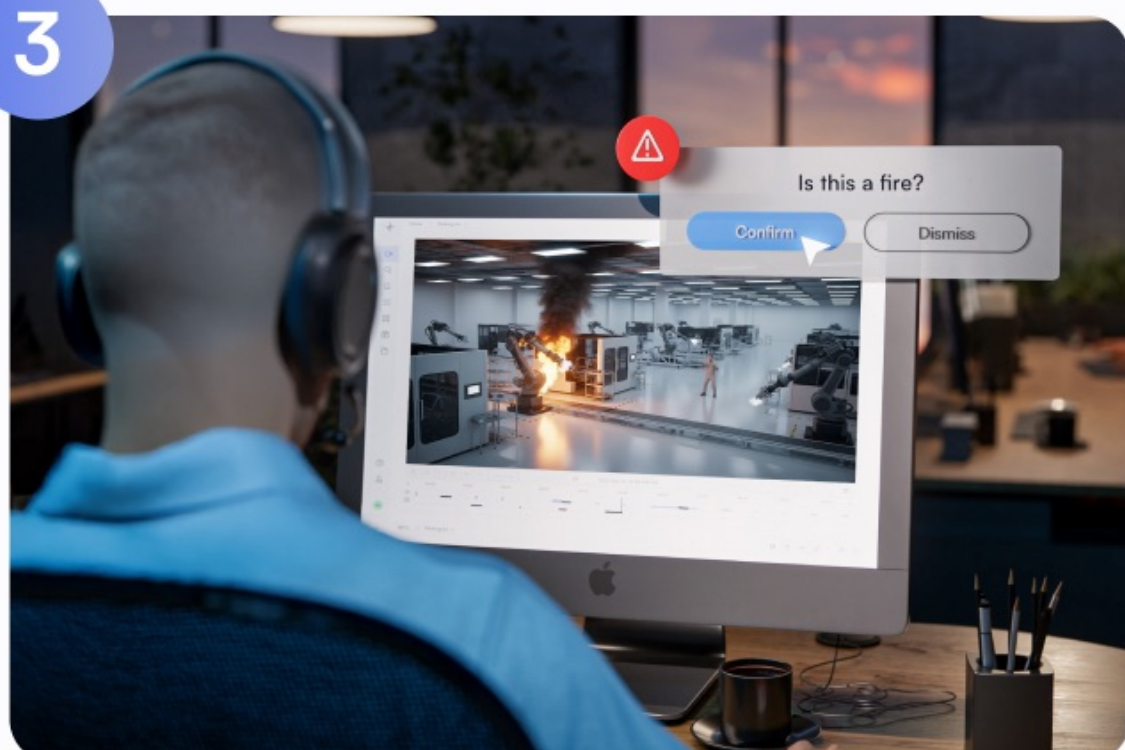
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### Reduce false alerts with multi-layer AI verification

- Lumana AI is trained on open flame, smoldering, and industrial fire situations for reliable detection in real-world conditions.
- Multiple AI checks filter glare, fog, reflections, and shadows to reduce false positives.
- IR-aware thresholds auto-adjust to maintain accuracy outdoors after dark.

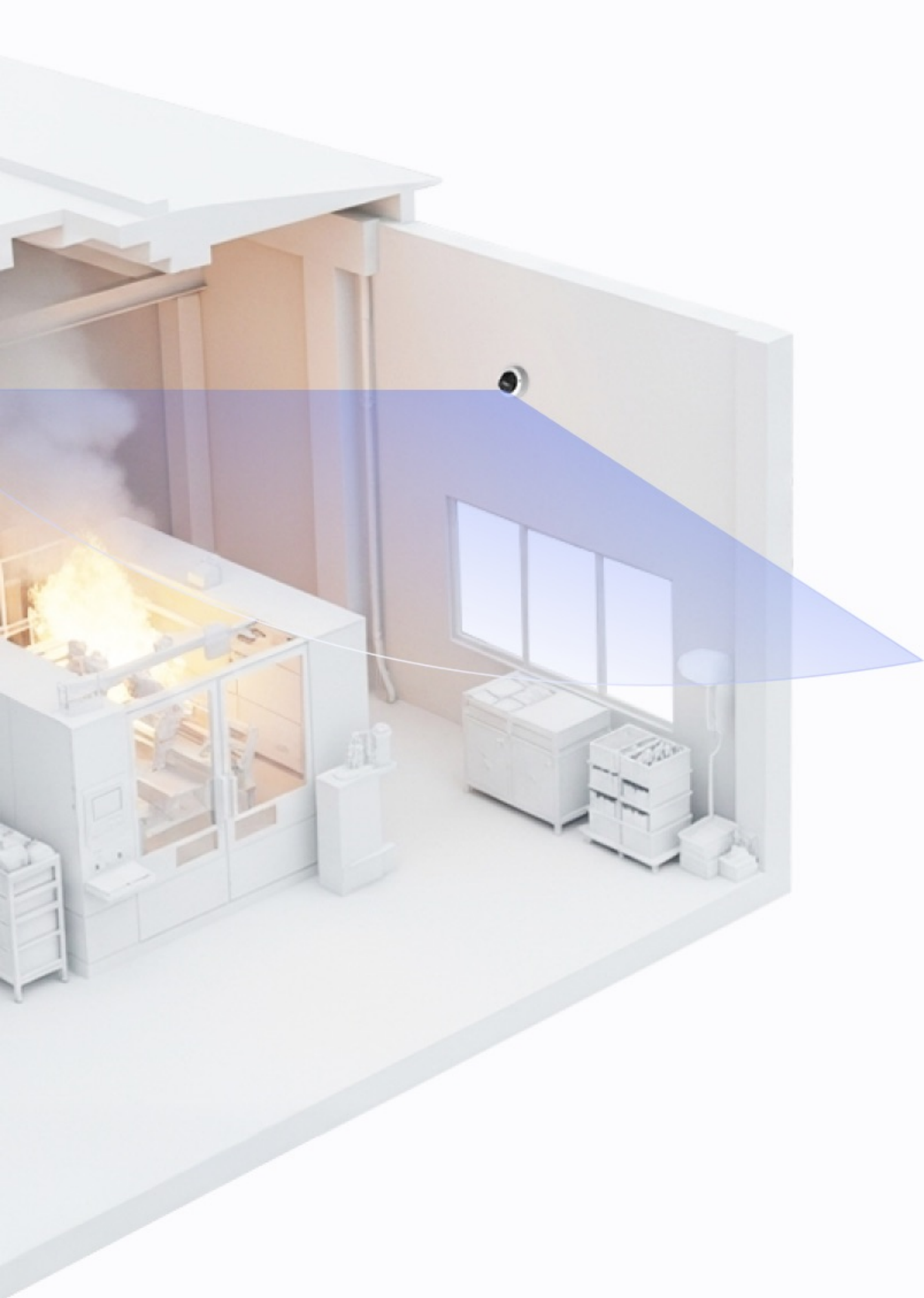
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### Respond faster with optional 24/7 Alarm Monitoring

- Live human verification confirms critical alerts for high-confidence decisions before escalation.
- Operators dispatch emergency services or internal teams immediately and coordinate per your SOPs.
- Hybrid AI and human verification blends automation speed with human judgment to reduce needless dispatch and improve outcomes.





## Detection benchmark

Detection is based on how much of the camera's view smoke or fire fills, not on a raw pixel count. In practice, the AI can reliably detect an event once flames or smoke cover about 7.5% of the camera's horizontal view.

### For example:

- On a 5 MP camera (~2592 pixels wide), that equals about 190 pixels across.
- At 30 ft away with a 90° view (scene ~60 ft wide), a ~3 ft-wide plume meets the threshold.
- At 100 ft away with the same view (scene ~ 200 ft wide), a ~15 ft-wide plume meets the threshold.

## Frequently asked questions (FAQs)

### **Q: How quickly can the system detect fire or smoke?**

A: Typical detection-to-alert time as low as 2 seconds, depending on conditions and configuration. Each detection is verified through multiple AI layers to minimize false positives.

### **Q: What is the detection benchmark of the system?**

A: A fire or smoke source must occupy at least 7.5% of the camera's horizontal FoV to be reliably detected.

### **Q: Can the system detect smoke outdoors?**

A: Yes, but cloud formations, fog, or exhaust can resemble smoke in outdoor environments. Our verification layers reduce this risk, but organizations should expect a higher likelihood of false positives outdoors compared to controlled indoor spaces. When operating in IR mode, the system automatically raises the detection threshold and focuses on visible flames, further reducing the likelihood of false alerts.

### **Q: What types of fire scenarios are covered?**

A: The system detects open flames (candles, torches, industrial fires), smoldering fires with visible smoke, and industrial hazards like sparks or flare-ups.

### **Q: Can human verification be added?**

A: Yes. With a licensed option, human operators can review and confirm fire/smoke detections before dispatching emergency services.

### **Q: Does the system replace traditional fire detectors?**

A: No. It is intended as an early-warning and situational awareness enhancement, complementing NFPA 72—compliant fire detection systems rather than replacing them.