



KONICA MINOLTA



WASTE MANAGEMENT AND RECYCLING COMPLETE SOLUTION PACKAGE

Giving Shape to Ideas

DO YOU OPERATE A WASTE FACILITY?

Waste facilities are dangerous places. There is a great amount of flammable material and a lot of energy sources. When fires start on waste facilities they often get completely out of control and beyond classic firefighting. More than one fire in the trash and recycling industry occurs every day in countries all over the world. Employees are at risk of injury, sites and machinery are damaged and the company's reputation is harmed. That's before you even consider the environmental implications.

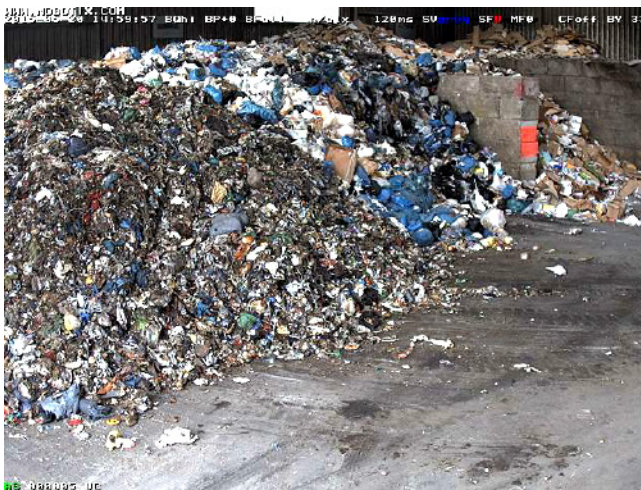
It is necessary to identify the fire instantly and put it out as fast as possible. The first step towards this strategy is a thermal camera based system that can detect hot spots where the fire might start. Early detection can prevent fires, therefore injuries, money loss and environmental pollution.

Konica Minolta Video Solutions Services offers a complete solution to monitor waste facilities in a safe, convenient and round-the-clock way using robust and state-of-the-art thermal cameras.

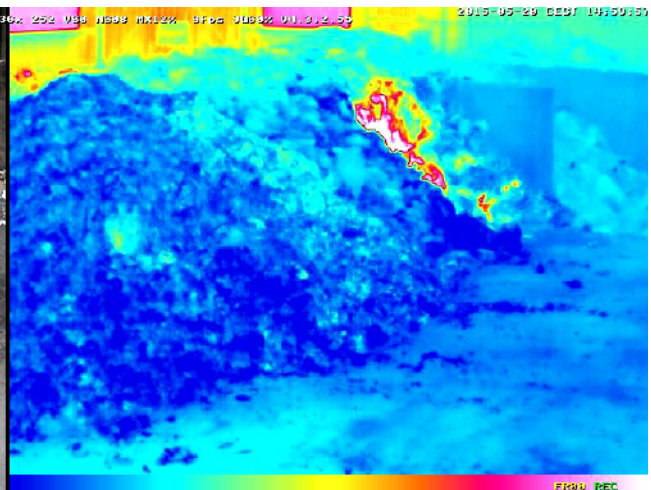
HOW DOES IT WORK?

Thermal cameras can see way beyond human vision. What we can see is simply a reflected light within quite a narrow fragment of the electromagnetic spectrum. Thermal energy, or simply – heat- has much longer wavelength than visible light. This is where thermal sensors fill in the gaps by capturing those wavelengths and then interpreting them as an image that human eye can understand. Most advanced thermal sensors also include thermal radiometry technology that make it possible to accurately measure the temperature of each pixel in the observed scene – we take advantage of that technology in our machine overheating protection solution.

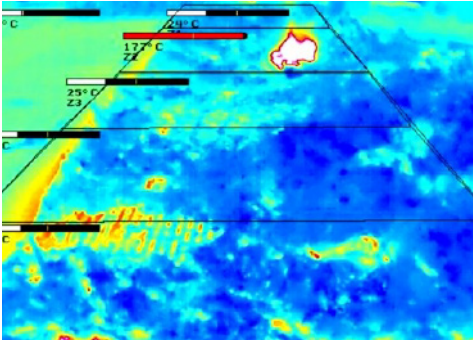
VISUAL SENSOR



THERMAL SENSOR



The main component of the solution is the **Robotix M73 hybrid thermal camera**. With its world famous modular design, M73 integrates a thermal sensor, visual sensor as well as – for example - a speaker module. **All in one enclosure. The visual sensor** allows you to have a clear overview of the scene, monitoring the employees and the property. **The thermal sensor** continuously keeps track of the temperatures of desired areas. You can configure 20 independent areas that the camera will monitor with a **precision of 0,1°C**. Upon meeting the preconfigured conditions, the camera will react in a number of ways- fully customizable to fit your needs. The **built-in speaker** module can warn the staff on site about the potential dangers, if needed. For maximum reliability, the M73 comes with an **internal DVR** that securely stores the recordings.



Thermal image - See beyond human vision!



MOBOTIX M73



Robust, industrial design

1 EARLY WARNING

The camera monitors the machines 24/7. Many separate areas can be monitored for any temperature abnormalities.

2 REASSURANCE

The 4K UHD resolution visual sensor allows for a high quality overview of the area, monitoring the staff and the premises.

3 CUSTOMIZABLE

The modular design allows for a built-to-order setup.

The thermal sensor :

- CIF or VGA resolution, mx.9FPS
- 17° Tele- to 90° wide angle thermal lens

The visual sensor:

- 4K UHD or Ultra LowLight 4MP
- Viewing angle from 15° up to 120°

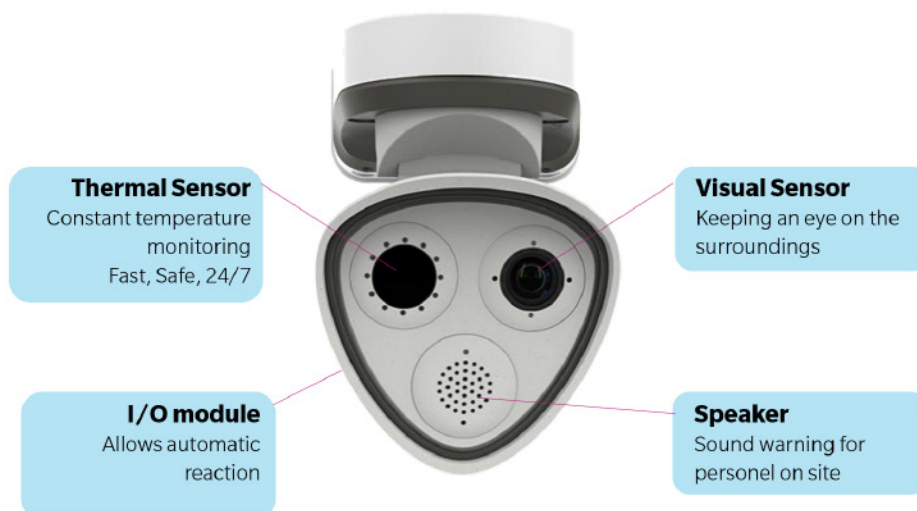
Additional modules:

- Speaker & Microphone
- IR light
- MultiSense – PIR, brightness & temperature, mic

4 EMERGENCY HANDLING

Upon detection of any abnormalities, the camera event handling system can react in a pre-configured way. Depending on the severity of the event, the camera can send notifications, broadcast an acoustic warning, and even send a signal to an existing alarm or fire extinguishing system using its built-in I/O module.

ALL-IN-ONE DEVICE





SELF COMBUSTION HIGH RISK MATERIALS

Tobacco, various kinds of oil, coal, composte, hay, manure and some chemicals are just a couple of examples of substances that may self ignite in a process of oxydation or fermentation. Leaving those items unattended is a timebomb.



WHAT ARE YOUR BENEFITS?

- Immediate detection of elevated temperature
- One device monitors the elevated temperature in a large area. One CIF resolution thermal lens with a 60° horizontal field of view can cover even 2000m²
- Thermal camera runs 24/7, from a safe distance without risking personnel's health or life
- In case of detecting abnormalities, the camera can send notifications to the responsible staff and broadcast warnings via its speaker to the staff in the affected area
- The system can send commands to other 3rd party systems, such as fire extinguishing solutions
- Saving money on insurance
- Preventing rather than containing

WHY IT'S CRITICAL - EXAMPLE SCENARIOS

SCENARIO 1

Tobacco plants

A cigarette manufacturer had a big issue in their warehouse, where tobacco was kept in big bags before being used to produce cigarettes. Tobacco, similarly to hay, some spices, woodchips and manure- poses a risk when moist. The fermentation process can rise the temperature inside the product to the level of a possible self-ignition. Before the implementation of thermal cameras, an employee was responsible for manual check of the temperature inside the tobacco bags in their warehouse. They would use a long probe to insert it inside each bag, one-by-one to read the temperature and confirm it was not rising to a dangerous level. That approach was not only time consuming and costly, but also dangerous. Inserting a probe would allow more air inside the bag, potentially igniting a reaction.

Installation of high resolution, wide angle thermal cameras solved the issue. The device would immediately detect an elevated temperature of a tobacco bag and then send a notification to the person responsible to remove it. The solution provides not only fire protection, but also saves the cost of a hazardous material handling dedicated employee.

SCENARIO 2

Coal stockpile

Over time, coal oxidizes naturally. This results in an exothermic reaction, which generates heat. The addition of more heat accelerates the reaction (sunlight, hot winds etc). If the heat from coal oxidation is held, it will continue to self-heat and finally reach temperatures above ignition.

The chance of spontaneous combustion is very high once the ignition temperature is reached. At this time, all that is required for the coal to ignite and spontaneously combust is oxygen. Because coal is a fuel source that can generate its own heat, there is a great risk of a small fire quickly becoming out of control.

The importance of early diagnosis in preventing spontaneous combustion is crucial. The accumulation of enough heat to ignite is the initial stage of spontaneous combustion. Early detection of problem regions using a radiometric thermal camera is possible before they spontaneously ignite. The use of a radiometric thermal camera eliminates the need for guesswork in fire detection and prevention.

The number of coal stockpile fires reported worldwide reinforces the importance of fire prevention systems implementation. It is estimated that there are more than 200 such fires burning every day in the US, and more than 100 in China, burning away as much as 200 million tons of coal and the money that corresponds to it.

SCENARIO 3

Waste facility

Recycling has become increasingly important in the struggle for sustainability as the human race produces more and more waste. Many recycling plants have been constructed to deal with various materials and convert them into something usable once again.

Many of these materials, such as paper and cardboard, are flammable. To minimize space, the materials are also pressed together. A dry, hot weather can significantly increase the amount of heat in the pile. All of these factors combine to create a potentially explosive situation.

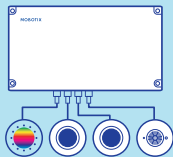
Heat can build up in places that are difficult to observe or measure in usual ways. For instance, in the middle of a trash pile (a process called “scalding”). There’s also no smoke emitted because it’s hidden by the waste’s outer layers.

Many of the waste facilities fires are caused by rechargeable batteries. According to WEEE(Waste of Electrical and Electronic Equipment) report “Characterization of fires caused by batteries in WEEE”:



» The most severe fires occurring at respondents’ facilities in the last four years gave rise to an average reported cost of damages of €1.3 million. More than a third of the respondents reports one of those severe fires, mostly described as intense fires and lasting between 1 to 6 hours. The intervention of a fire brigade was required in the most severe cases, and the insurance coverage of those incidents is unclear. «

SEE THE SYSTEM IN ACTION:



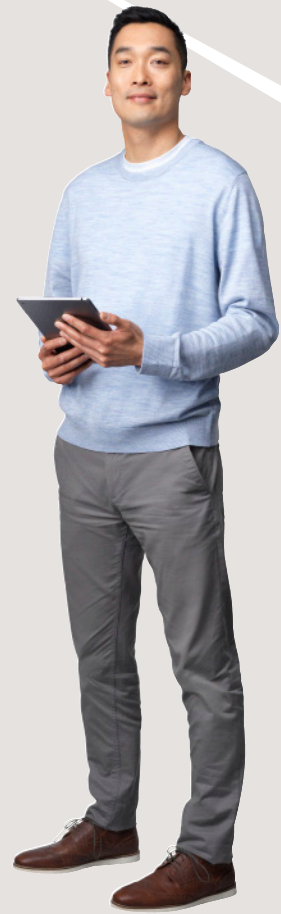
MOBOTIX S74



MOBOTIX M73



KONICA MINOLTA



LET'S TALK

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