



# **MACHINE OVERHEATING PROTECTION**

**COMPLETE  
SOLUTION PACKAGE**



# DO YOU OWN A PRODUCTION LINE?

Whether in manufacturing, printing, assembling or servicing, machines have become an integral part of all of the processes. Quite often they work around-the-clock, tirelessly driving productions to maximize efficiency and productivity. Machines, however are not perfect and they require regular maintenance to ensure smooth and uninterrupted operation. Experience shows that predictive maintenance is the best way to keep the production running by detecting potential failures before they happen. In many cases, a symptom of imminent component failure is overheating of certain parts of the equipment.

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

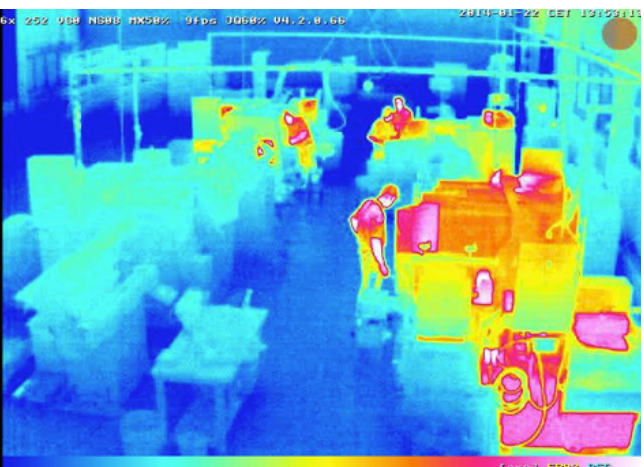
## HOW DOES IT WORK?

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.

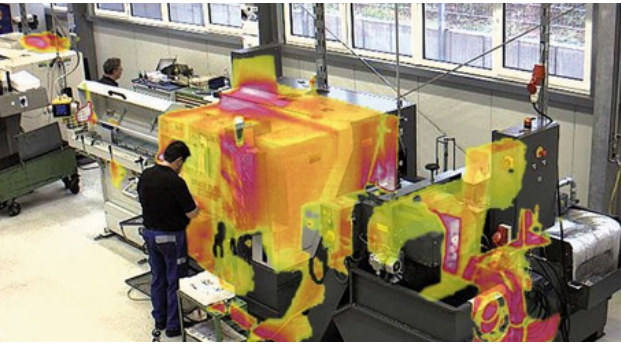
## VISUAL SENSOR



## THERMAL SENSOR



The main component of the solution is the **Mobotix 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 components or even the area around 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°

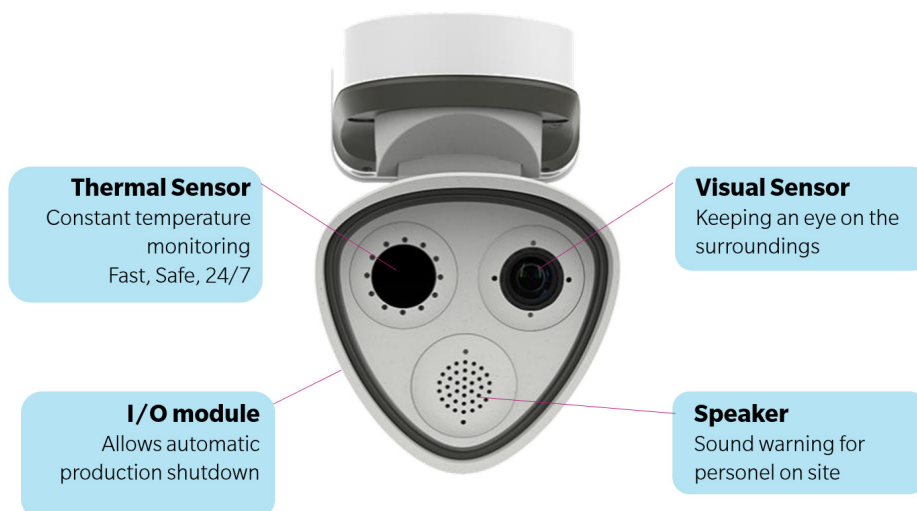
### Additional modules:

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

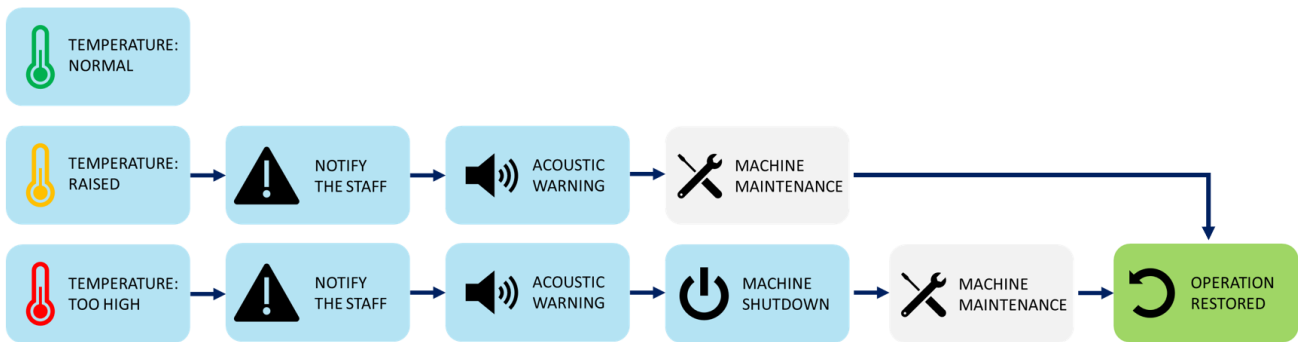
## 4 EMERGENCY HANDLING

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 switch on an emergency production brake using its built-in I/O module

## ALL-IN-ONE DEVICE

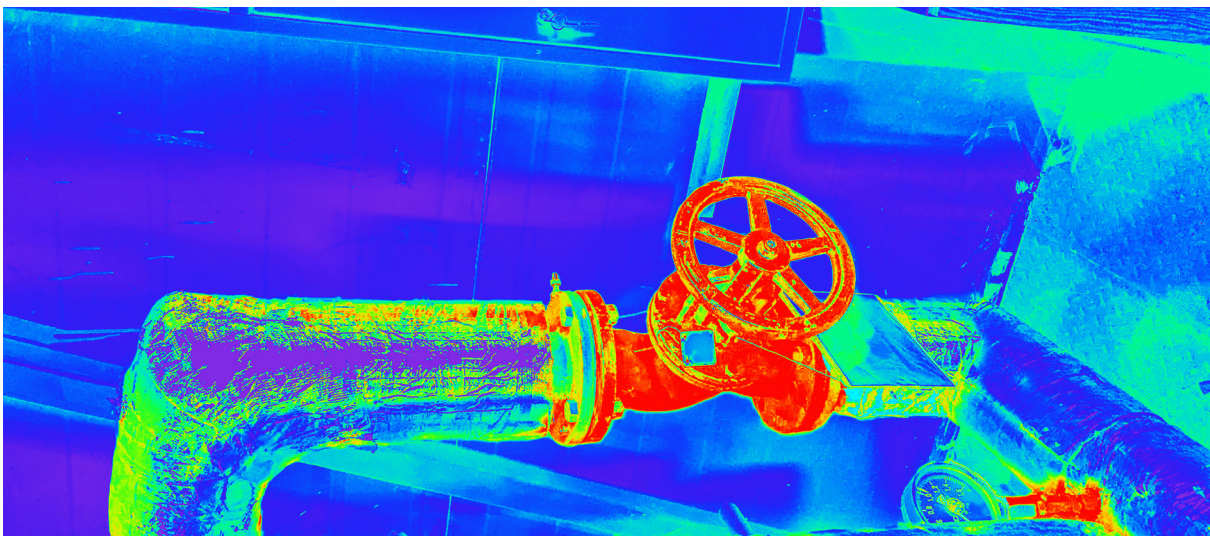


# FULLY CONFIGURABLE EVENT HANDLING



## WHAT ARE YOUR BENEFITS?

- Immediate detection of elevated temperature
- One device monitors the temperature of many components
- Thermal camera runs 24/7 – it is a safe and reliable way to monitor the temperature of the machine or certain components, without the need of exposing a person with a handheld thermometer
- In case of detecting abnormalities, the camera can send notifications to the maintenance staff and broadcast warnings via its speaker to the staff in the production hall
- I/O module can automatically send a command to the emergency halt module to shut down – immediately and remotely
- Saving money on insurance
- Preventing rather than containing
- Avoid failure and maintenance fees
- Maintain reliable operation



**EVEN A SMALL COMPONENT FAILURE CAN STOP THE PRODUCTION!**



# MODEL CALCULATION

A typical setup for monitoring a machine or series of components in one area includes:

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Mobotix M73 - Hybrid Thermal Camera (4K Visual lens & CIF Thermal lens)

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Speaker module

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POE switch

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**Total cost**

**5500 EUR**

Additional modules for stopping production via the camera may be needed.



» We are very satisfied with the entire system and plan an expansion of other production facilities. «

**Logistics center safety manager**

## WHAT IS YOUR RETURN OF INVESTMENT?

### SCENARIO 1

KUHN RIKON is a world-renowned Swiss cookware manufacturer with over 200 employees. Manufacturing these products involves highly difficult production steps. One of these caused a disastrous accident in 2015. Large portions of the production facility caught fire, incurring **damages** of approximately **€4.6 million**. Since then, thermal cameras monitor the production around-the-clock to make sure similar accident never happens again.

Three escalation steps have been programmed, which the Mobotix camera can independently trigger if needed:

1. Heat warning on a display
2. Pause the machine for an analysis
3. Switch off the system and automatically delete.

The system has been running smoothly since 2018. Other locations are also using the machine overheating solution. Thanks to the simplified control that this new setup entails, **productivity was boosted by around 5%**. No more accidents occurred and the customer trust was restored.

## SEE THE CUSTOMER TESTIMONIAL VIDEO:



## SCENARIO 2

A ceramics manufacturing company that makes high temperature insulation products has been inspecting their high-voltage transformers on production lines that are enclosed in special cages and cannot be reached directly. One of those devices was running at a temperature twice as high as a regular allowed level. That small component of an entire production was responsible for powering one of the product lines. The transformer failure would have caused a big part of the factory to be stopped.

Thanks to the **thermal camera's inspection** it was found out that the colling system has failed to a point of an imminent meltdown of the device. The event was detected ahead of the scheduled maintenance. A failure of that kind would have shut down the production for at least 13 hours.

Thanks to the system detecting the inevitable failure, the proactive replacement of the damaged transformer has **saved the company an estimated 37,000EUR**.

### Stopped production may generate various costs:

- Lost production
- Labor costs for idle workers
- Inventory expenses
- Loss of customer confidence
- Lost contracts



MOBOTIX S74



MOBOTIX M73