

THERMOGRAPHIC SYSTEM
FOR CONDITION MONITORING
OF CRITICAL INFRASTRUCTURE

AUTOMATIC **FIRE**
AND **OVERHEATING** DETECTION

T-THERMAL



T-Thermal system is designed for a non-stop monitoring of temperature events and processes that occur on the surface of the observed objects and areas. System can quickly identify undesirable thermal changes of the observed objects and immediately alerts an operator.

How does the system work?

An observed object is continuously monitored by thermal imaging cameras that provide its thermal images and simultaneously measure its temperature. A thermal video of the object, including captured data of its temperature, are continuously transferred to a central control system, where they are evaluated with a help of intelligent software in real-time.

If the Thermal Detection system detects undesirable temperature changes of the observed objects (exceeding preset temperature, temperature elevation), it will automatically alert the operator. Such warning can significantly affect operator`s decision and his early intervention can prevent extensive damage or avoid of complete destroying of the observed device.



System description

The system is composed of three basic subsystems.

- A.** thermographic cameras, which are installed on a site and continuously monitor temperature of observed object
- B.** signal and temperature data transferring infrastructure
- C.** alarm management system, which records and evaluates data from thermographic cameras in real-time

**PREVENTION IS CHEAPER
THAN THE CAUSED DAMAGES**

KEY FEATURES

Real-time monitoring

The control system automatically evaluates temperature data coming from connected thermographic cameras in real-time. The algorithm of management software is set up to be able to instantly recognize undesirable temperature changes of the observed area. If the system identifies such changes (temperature elevation or exceeding of threshold limit), it immediately notifies the operator.

Monitoring mode is fully automated, so that system doesn't require an operator.

Real-time displaying

During monitoring mode, is the system ready to provide a live video for the operator (of the cameras on site). So, the operator has very recent and clear information about each critical event in monitored area. Real-time monitoring of the site helps him to make quick and right decisions about what kind of intervention or reaction is necessary for saving of critical situation there..



Features

- connectivity up to 24 camera channels
- ready for dual view cameras - infrared plus visible spectrum in one unit
- ready for PTZ cameras with presets of positions – for cost effective solutions
- up to 25 separate ROI's for each thermographic camera (ROI - definable detection zone)
- automatic detection - evaluation and indication of exceeded temperature limits and temperature gradients
- ready for indoor and outdoor applications
- the ability to observe large objects and area
- mono or multi-screen display
- long-term recording of video and radiometric stream (temperature data)
- analysis of recorded data - time graph of temperature progress and replay of radiometric stream as a video (IR spectrum)
- quick search of video/data sequence - by date, time or recorded event
- designed for 24/7 operation
- client/server solution - allows to design large systems with more operators
- intuitive and user-friendly interface

Continuous video/data recording

The system allows to perform continual recording of camera video (IR) and radiometric stream (temperature) of observed objects. The recording capacity depends of the hardware configuration (up to several weeks history).

Analysis of recorded temperature data

The system allows to perform analysis of recorded temperature events and their time course in details.

The system offers two independent ways of analysis:

- visual – replay of thermographic stream as a video (IR spectrum)
- graphical – time course of selected temperature points/areas

The post-analysis of the recorded temperature event enable to determine an exact time of the event beginning and also its time course. The output of the analysis are graphs which display the behavior of temperature changes at any point of the observed object. In this way it is possible to analyze each area of the picture from thermographic camera (up to one-pixel level).

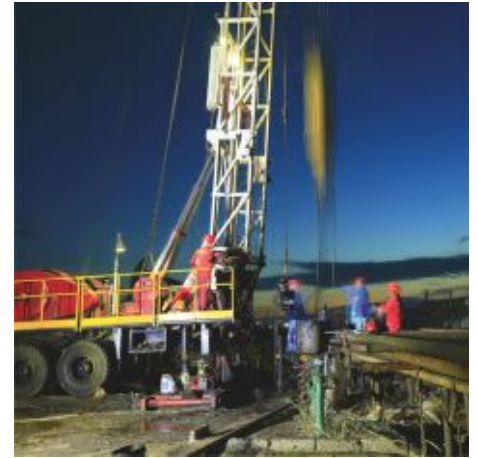
The information (knowledge) obtained from the analysis can be used for identifying of the causes of events and the reconstruction of their course as well as for perspective designing of preventive and effective actions.



Where you can use the T-Thermal

T-Thermal can be used wherever is a need for early identification of undesirable thermal events which carry the risk of damage of devices due to its uncontrolled overheating (equipment failure, unpredictable course of thermal processes, human factor, etc.).

EXTRACTION OF DANGEROUS MATERIALS



TRANSPORTATION OF DANGEROUS MATERIALS



PROCESSING OF DANGEROUS MATERIALS



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