

Early Fire Detection & Condition Monitoring

Thermal Imaging Systems for Monitoring of Industrial Facilities in EX-/Non-EX-Zones

- Early Fire Detection of Large-Area Installations
- Thermal Condition Monitoring
- Operational Monitoring of Gas Flares
- Condition Monitoring of Gasifiers
- Early Fire Detection of Warehouses
- Early Fire Detection in Traffic Tunnels
- Condition Monitoring of Substations



Early Fire Detection



Detection of Fire Hazards before Fire Outbreaks occur

If easily flammable materials like oil or chemicals are catching fire, the flames will often spread very quickly. With these conditions, any kind of fire-fighting can just lead to a controllable burning but not to a limitation of the damage. To avoid such situations, potential fire risks need to be identified before a fire outbreak occurs. To detect potential fire hazards at a very early stage, infrared cameras mean a reliable solution because they can continuously scan large areas with complex installations for critical temperature developments. With an automatic alarming and support of several standard interfaces, our early fire detection systems enable a fast and direct communication with corresponding fire alarm systems or installations for firefighting. Counter-measures like an activation of sprinkler systems can thus be performed instantaneously. With our systems you can be sure that the storage and use of your hazardous materials are monitored according to the most advanced safety standards.



- Infrared cameras with enclosure for outdoor use (optional with pan-tilt system for extension of the monitored area)
- Server-PC with database and web server

- Signaling device for indication of critical conditions
- Console for operation and visualization

Key Advantages of Thermographic Monitoring:

- Detection of fire hazards before a fire breaks out
- Reliable 24/7 monitoring of areas with a high risk of fire and explosions
- Comprehensive temperature monitoring of large areas with complex installations
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Maintenance-free operation
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the field of thermal monitoring

Key Features of our Systems:

- Modular system architecture: Tailor-made system solutions even for complex monitoring tasks
- Fully automatic monitoring with continuous self-checking of all system components
- Various standard interfaces for easy integration and communication with existing control and alarming systems
- ATEX-certified housings for installation and operation of temperature measuring infrared cameras in Ex-zones 1, 2, 21 and 22
- Flexible data management and analyzis with 100% traceability via database and web server

Condition Monitoring



Detection of Critical Conditions by means of Thermal Imaging

Industrial facilities do not only represent a high investment value, they can also cause high downtime costs when it comes to unscheduled production stops. A failure on individual equipment can impair the function of further components or even lead to potential risks for the operating personnel. In consequence there are many good reasons for ensuring a continuous and safe operation of industrial plants. A reliable solution for monitoring the operating conditions of plant components is to evaluate their temperature developments by means of thermal imaging. As an essential advantage, our thermal monitoring solutions feature a continuous analysis of the thermal images recorded by numerous infrared cameras. This allows performing reliable scans of large areas for early identifying conditions that can become critical. However, our monitoring systems do not only mean a profitable investment for safety reasons. In many applications the thermal analyzing software can also provide you with valuable information for optimizing production processes or machine running times.



- Infrared cameras with enclosure for outdoor use (optional with pan-tilt system for extension of the monitored area)
- Server-PC with database and web server

- Signaling device for indication of critical conditions
- Console for operation and visualization

Key Advantages of Thermographic Monitoring:

- Reliable 24/7 monitoring of industrial plants
- Early detection of critical conditions by continuous analysis of temperature trends
- Comprehensive temperature monitoring even of large installations
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Maintenance-free operation
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions

Key Features of our Systems:

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Flare Monitoring



Operating Check of Gas Flares

The flaring of gas is a common process in petrochemical plants. However, there is always the challenge to ensure a 100% reliable operation of the flare because else a large quantity of untreated waste gases could be released into the atmosphere. To avoid such situations with environmental pollution and non-compliance to governmental regulations, AT offers a reliable 24/7 solution for monitoring the operation of gas flares. In contrast to common video systems, infrared cameras are not vulnerable to darkness or bad weather conditions like rain or mist. With these features thermal imaging means an ideal solution for gas flare checks: it allows a reliable monitoring of the flame in all weathers and at any time of day.

Other temperature monitoring devices like thermocouples require an installation in the immediate vicinity of the pilot flame, which causes frequent faults and failures. In contrast infrared cameras can monitor the flaring process from a safe distance. Usually the installation can be performed outside of hazardous areas, which significantly reduces the system costs. Our thermal imaging system provides a fail-safe continuous operation, giving you an ideal instrument for reliably monitoring your flares.



- One infrared camera with outdoor enclosure for each gas flare (optional with pan-tilt system for monitoring several gas flares with one IR camera)
- Signaling device for indication of critical conditions
- Console for operation and visualization

Server-PC with Database and web server

Key Advantages of Thermographic Monitoring:

- Reliable 24/7 operation for monitoring gas flares
- Immediate detection of extinguished pilot flames with direct alarming for quickest possible flame restart or stop of the gas flow
- Maintenance-free operation
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions
- Recommended by leading insurers

Key Features of our System:

- Fully automatic monitoring with continuous self-checking of all system components
- Modular system architecture: Tailor-made system solutions even for complex monitoring tasks
- Various standard interfaces for easy integration and communication with existing control and alarming systems
- ATEX-certified housings for installation and operation of temperature measuring infrared cameras in Ex-zones 1, 2, 21 and 22
- Flexible data management and analyzis with 100% traceability via database and web server



Early Detection of Critical Conditions on Gasifiers

Gasifiers are used for gasification processes where carbon-containing materials like coal or oil are converted into synthesis gas. The process in the inner runs at temperatures of up to 1600°C and at high pressures. To withstand these extreme conditions, the reactor vessel is coated with a fireproof lining. However, during operation the refractory is subject to wear, cracking and degradation. If the refractory lining fails, the hot gas will immediately break through the metal shell, leading to an explosion with catastrophic consequences for the surrounding equipment and in addition to an unplanned shut-down. Besides this economical impact there is also a high risk of personnel injuries or even loss of lives. In consequence it is absolutely essential for a safe operation of a gasifier, that the operators have reliable information about the condition of the refractory lining at any time.

For the thermal monitoring of gasification vessels infrared imaging systems mean an effective solution. Infrared cameras continuously scan the entire surface of gasifiers, immediately detecting and tracking any hotspots or abnormal thermal conditions before they can cause a threat to the reactor metallurgy.

However, thermographic monitoring of gasifiers is not only useful for safety reasons. The analyzing of thermal images delivers also valuable information for an optimization of the gasification process. For example, the thermal data can help you to determine the location of the reaction zone, to assess the refractory wear or to get aware of changes in the feed injector performance. In consequence, our Thermographic monitoring system provides you with both safety and economic benefits.



Typical System Setup:

- Infrared cameras with EX-proof enclosures (optional with EXproof pan-tilt system for extension of the monitored area)
- Server-PC with database and web server
- **Key Advantages of Thermographic Monitoring:**
- Increased safety for gasification processes
- Prevention of explosion-hazard gas leakages
- Maximization of the refractory lining service life
- Optimized refractory maintenance
- Reliable 24/7 monitoring of gasification processes
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions

Console for operation and visualization

Key Features of our Systems:

 Modular system architecture: Tailor-made system solutions even for complex monitoring tasks

Signaling device for indication of critical conditions

- Fully automatic monitoring with continuous self-checking of all system components
- Several standard interfaces for easy integration and communication with existing control and alarming systems
- ATEX-certified housings for installation and operation of temperature measuring infrared cameras in Ex-zones 1, 2, 21 and 22
- Flexible data management and analyzis with 100% traceability via database and web server

Warehouse Monitoring



Early Detection of Fire Hazards in Warehouses

The storage of highly flammable substances like paper, wood pellets, coal or chemicals requires special attention to the prevention of fire hazards. Once a fire has broken out, most fire-fighting actions can only obtain a controllable burning but not a limitation of the damage. Besides this the warehouse operator can be held liable for environmental pollution or for injuries or even the death of personnel. To avoid such situations, potential fire risks need to be detected before a fire outbreak occurs. Infrared monitoring systems mean a reliable solution for early fire detection because they can continuously scan large areas with complex installations for critical temperature developments to detect potential fire hazards in good time. Due to an automatic alarming and support of several standard interfaces, our early fire detection systems enable a fast and direct communication with corresponding fire alarm systems or installations for firefighting. Thus, counter-measures like the activation of sprinkler systems can be initialized immediately. With our systems you can be sure that the storage areas of your goods are monitored according to the most advanced safety standards.



- Infrared cameras with enclosure for outdoor use (optional with pan-tilt system for extension of the monitored area)
- Server-PC with database and web server

- Signaling device for indication of critical conditions
- Console for operation and visualization

Key Advantages of Thermographic Monitoring:

- Detection of fire hazards before a fire breaks out
- Reliable 24/7 Monitoring of storage areas with flammable materials
- Comprehensive temperature monitoring of large areas with complex installations
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Maintenance-free operation
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions

Key Features of our Systems:

- Modular system architecture: Tailor-made system solutions even for complex monitoring tasks
- Fully automatic monitoring with continuous self-checking of all system components
- Several standard interfaces for easy integration and communication with existing control and alarming systems
- ATEX-certified housings for installation and operation of temperature measuring infrared cameras in Ex-zones 1, 2, 21 and 22
- Flexible data management and analyzis with 100% traceability via database and web server



Early Detection of Fire Risks in Train or Car Traffic Tunnels

In tunnels for car traffic or trains a fire outbreak can cause disastrous consequences, because often such tunnels have only limited escape facilities. Moreover, the poor visibility conditions caused by smoke complicate the fire-fighting as well as the evacuation of personnel . To prevent such dangerous situations, potential fire risks like overheated brakes on vehicles need to be detected before they spark off a fire. Infrared cameras mean a reliable solution to detect these potential risks because they can continuously scan long and winding track sections for fire hazards. Furthermore these cameras can see in complete darkness and through smoke, making them to an ideal tool for supporting the coordination of fire-fighting actions and for the search and evacuation of persons. For immediate alarming, our monitoring systems feature an automatic signal output with several standard interfaces, allowing a fast and direct communication with installations for fire-fighting and with visualization systems. In consequence, counter-measures like the starting of sprinkler systems and the display of liveimages for supporting the fire-fighting from the control centre can be initiated in shortest time. Our tailor-made systems give tunnel operators a solution that not only detects potential fire hazards in good time but also provides an effective tool for the coordination of the firefighting and the evacuation.



Typical System Setup:

- Infrared cameras with enclosure for outdoor use (optional with pan-tilt system for extension of the monitored area)
- Server-PC with database and web server

Key Advantages of Thermographic Monitoring:

- Detection of fire hazards before a fire breaks out
- Reliable 24/7 Monitoring of long and winding tunnel sections
- Comprehensive temperature monitoring of large areas
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions
- Recommended by leading insurers

Console for operation and visualization

Key Features of our Systems:

 Modular system architecture: Tailor-made system solutions even for complex monitoring tasks

Signaling device for indication of critical conditions

- Fully automatic monitoring with continuous self-checking of all system components
- Several standard interfaces for easy integration and communication with existing control and alarming systems
- Flexible data management and analyzis with 100% traceability via database and web server

Substation Monitoring



Condition Monitoring of Substations

Substations are the central hubs of power distribution grids. Technical failures in these installations can cause far-reaching blackouts with loss of revenue and even high penalties for the utilities company. Moreover, plant components like transformators are very expensive and have long delivery times if they must be replaced. In summary there are many economic reasons for utilities companies to ensure a continuous and safe operation of their substations. Due to the fact that infrared cameras can continuously scan the temperature of objects, thermographic monitoring systems detect critical conditions on the components of substations before it comes to a failure. Another advantage of thermal monitoring solutions is the continuous analyzing of thermal images recorded by numerous infrared cameras. This enables reliable scans of large areas with complex installations around the clock. With its support of various standard interfaces, our thermal monitoring systems enable a fast and direct communication with corresponding alarm systems and visualization consoles in control centers. Thus, countermeasures can be performed in shortest time and unexpected blackouts in your power distribution grid will belong to the past.



- Infrared cameras with enclosure for outdoor use (optional with pan-tilt system for extension of the monitored area)
- Server-PC with database and web server

- Signaling device for indication of critical conditions
- Console for operation and visualization

Key Advantages of Thermographic Monitoring:

- Reliable 24/7 condition monitoring of substations
- Comprehensive temperature monitoring of large installations
- Early detection of critical conditions by continuous analyzing of temperature trends
- Automatic evaluation of thermal images and alarming for quickest possible danger prevention
- Maintenance-free operation
- Consultation and service for planning, installation and maintenance from a company with more than 15 years of experience in the development of thermal monitoring solutions

Key Features of our Systems:

- Modular system architecture: Tailor-made system solutions even for complex monitoring tasks
- Fully automatic monitoring with continuous self-checking of all system components
- Several standard interfaces for easy integration and communication with existing control and alarming systems
- Flexible data management and analyzis with 100% traceability via database and web server

Recommended by leading insurers



POLYTEC GmbH T: +49 (7243) 604-4540 Polytec-Platz 1 - 7 Fax: +49 (7243) 699 44

D-76337 Waldbronn E-Mail: wl@polytec.de