DIAS
Infrared Systems

Infrared Early Fire Detection System

PYROVIEW FDS
Fire Detection System

Early fire detection in depots, waste bunkers and open areas

Early detection of incipient and smoldering fires plays a major role in the storage of waste, recycling and material goods. As a result of large fires, the acceptance of the population towards the waste management industry decreases. Preventing fires can avoid financial damage and pollution of the environment. Not least, insurance companies have therefore been demanding the use of reliable detection methods in waste management companies for years.

The extreme external environmental influences prevailing in such plants, such as dust or high humidity, make fire detection with conventional monitoring systems difficult.

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Fire detection system **PYROVIEW FDS**

The **PYROVIEW FDS** early fire detection system from DIAS Infrared was specially developed for difficult and extreme environmental conditions. The used infrared camera technology allows to detect smallest embers and hotspots at an early stage, often before a fire starts. The surface temperature of stored goods is determined without contact and over a large area. By detecting potential fire sources and ember nests, serious fires and the associated production downtimes or plant shutdowns can be avoided.

Insurers recommend the use of early fire detection systems based on infrared measurement technology. Our **PYROVIEW FDS** system is approved by VdS for temperature monitoring in fire protection.

Typical applications:
Waste incineration plants, indoor and outdoor storage (e.g. storage of chemical substances, flammable and explosive materials, tire storage, raw material storage, etc.), and recycling yards

PYROVIEW FDS & PYROSOFT FDS

System for early fire detection with smart software and smartphone app

A monitoring unit of the early fire detection system **PYROVIEW FDS** has a modular design. It consists of the high-resolution **IR camera**, the **pan-tilt head** and the **reference radiator**. Due to the high resolution of the infrared camera, even small embers can be reliably detected. An additional visual camera or rangefinder is therefore not required, but is available as an option. Even in the case of heavy smoke development, the current situation can be assessed and the extinguishing process observed. The infrared cameras and the reference radiator are developed, manufactured and calibrated by DIAS Infrared itself. Technical improvements, competent customer support and an extensive spare parts stock are guaranteed at all times. Downtimes are reduced to a minimum.

In an environment with a high dust load, air purging of the lens is necessary to ensure a clear view of the monitoring area. In this case, the purge air is blown out via a ring nozzle in front of a lens protection window. Additional cooling is not required at ambient temperatures up to 55 °C.

Mounting the IR camera on a pan-tilt head enables large-area monitoring up to 360° horizontal and 90° vertical angles. The area to be monitored is divided into sectors, which are approached cyclically one after the other. Only small overlaps between the sectors ensure that the largest possible area is monitored completely and efficiently.

In each sector, areas can be excluded or monitored with special features (e.g. electrical installations). Object-related temperature thresholds for a pre-alarm and a main alarm can be specified. The pan-tilt head is maintenance-free, designed for 24/7 operation and, like the entire system, has IP66 protection.

The reference radiator is decoupled from the pan-tilt head and allows the entire system to be checked cyclically. The reference radiator is heated up to 50 °C in a typical interval of 24 hours. When this temperature is reached, the camera is automatically aligned with the reference source. The measurement result is then checked. In this way, any contamination on the lens, mechanical damage to the mounting bracket or any malfunctions can be detected and output on the PC or in the app.

The fully equipped IR camera system PYROVIEW FDS fulfills the requirements of the VdS guideline 3189 and is recognized by VdS under the recognition number G220034 for temperature monitoring in fire protection.

DIAS Infrared Systems

The use of the software **PYROSOFT FDS** in combination with the intelligent early fire detection system **PYROVIEW FDS** makes it possible to react to fires at an early stage. The various causes of fire, such as chemical or organic reactions of substances, require a flexible system to detect an initial ignition (hotspot alarm) and a temperature increase of the entire stored goods (area alarm). By using intelligent evaluation algorithms, false alarms are avoided and high costs for the incorrect alarming of firefighters are prevented.

Furthermore, it is possible to localize the source of the fire. This information can be made available to an extinguishing system to support firefighting. The aim is to distribute the extinguishing agent over a large area above the source of the fire in order to also contain the spread.

- Hotspot detection in real-time with up to 32 DIAS thermal imaging cameras
- Intelligent alarm monitoring with spot and trend analysis to avoid false alarms
- Overview of all camera images, views for individual sectors
- Map view and panorama view with current camera position
- Operating modes: „Automatic", „Manual" and „Operator"
- Server-/Client architecture for remote access with **PYROSOFT FDS** Client
- Offline evaluation, event display and report generation with **PYROSOFT FDS Viewer**

PYROSOFT FDS Client (App)

Monitoring and remote control of PYROVIEW FDS systems

PYROSOFT **FDS Client** is an App, which allows online access to PYROVIEW FDS systems for early fire detection.

So image data and status information can be queried at any time and commands for remote control can be transmitted. In case of a malfunction or alarm a notification is sent by push message or e-mail, so that a fast reaction is possible. By viewing relevant information, the situation can be assessed in advance.

Two user levels (observer/operator) are available.

Features		
• Status information for all lines: – Alarms – Errors – Current sector – Current position of pan-tilt-head – Current selected operation mode • Live infrared images • Panorama images (for **PYROSOFT FDS Server** with panorama)	• Sector images (for **PYROSOFT FDS Server** without panorama) • Maps • Visual live and sector images (for systems using visual cameras) • Change of operation mode (automatic/manual)	• Move to required sector by tapping in the panorama image • Move to required sector by selection from a list • Pan-tilt-head remote control by gestures in live image • Receive push messages in case of alarm or error • Alarm confirmation (for the user level operator only)

Advantages, system components

Löschmittel wird großzügig über dem detektierten Brandherd verteilt, um auch die erhitzte Umgebung zu kühlen.

* **Made in Germany**: We manufacture and develop our infrared camera PYROVIEW and the reference radiator ourselves at our headquarters in Dresden, Germany.
* **Flexible system** for the detection of hotspot and area alarms
* **Intelligent functions** to avoid false alarms
* **Self-monitoring** of the system functions (fully control of the camera, the pan-tilt head with reference source, the software and cables)
* Localization of the fire source and control of the extinguishing systems for **large-area distribution** of extinguishing agent
* **Automatic, cyclic monitoring** of multiple sectors: complete and efficient monitoring of the largest possible area
* **Reliable monitoring** even in the presence of heavy smoke or dust load
* **Optional** use of **visual cameras** and **rangefinder**
* **Fast localization** of the source of fire
* **We are there for you:** We take care of planning, installation, commissioning and maintenance for you. Our customer service is available for you by phone and email and helps with questions.

Made In Germany

All components of the infrared early fire detection system PYROVIEW FDS			
Infrared camera PYROVIEW FDS 380L/640L Stainless steel housing	– Measuring temperature range from –20 °C to 350 °C (optional: 500 °C) – Spectral range: 8 µm to 14 µm – 384 × 288 Pixel (380L) or 640 × 480 Pixel (640L) – Maximum image frequency 50 Hz, Ethernet interface – IP66 with integrated air purge unit to avoid contamination of the lens	**Power supply/USV**[2]	– Optimal: 2 isolated feeds (1x buffered, 1x unbuffered) – Alternative: own USV for 4 h or 30 h operation
		I/O-System programmable bus controller	– Monitoring system status – transmission to PC – Alarming via digital output and further interfaces
Weatherproof housing[1]	– With heating and hard-coated GE window	**Touch-PC**	– Operation and monitoring station with 21" Touch-Monitor
Pan-tilt-head	– Move to programmable positions, freely manually positionable – 359° horizontal, 180° vertical, 0.1° resolution	**Software PYROSOFT FDS**	– Server-/Client software
Reference radiator[2]	– Control of camera and pan-tilt function – Little deviations are corrected, malfunction information when heavily soiled	**App PYROSOFT FDS Client**	– App forr Android and iOS smartphones

[1] Only for outdoor areas/storage FDS. [2] Optional for VdS 3189 conformity

References

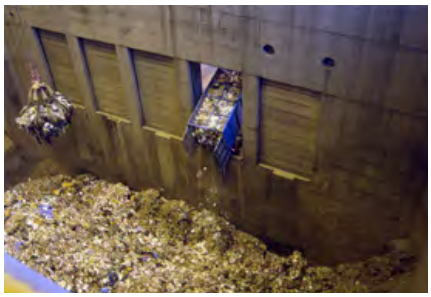
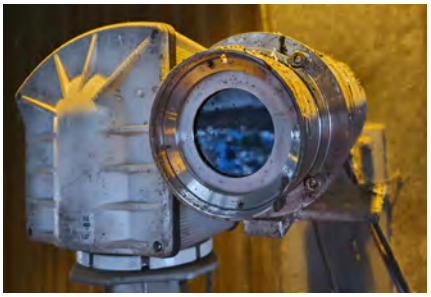
Umweltdienst Burgenland (Oberpullendorf, Österreich)

In the Austrian city Oberpullendorf a camera systems monitors a recycling storage.



Uddevalla Energi AB (Uddevalla, Schweden)

In Swedish city of Uddevalla our PYROVIEW FDS monitors the waste incineration plant of Uddevalla Energi AB.


Hazardous waste deposit (Kölliken, Schweiz)

A part of the new security concept is the permanent monitoring of the entire dismantling of the hall and storage area with the thermal imaging cameras. The decision was made for the system solution PYROVIEW FDS of the company DIAS Infrared GmbH, which was realized together with the company Transmetra GmbH.



National park Pirin (Provinz Blagoevgrad, Bulgaria)

For the project "Sustainable forest management and environmental protection by building a forest fire detection system and an information center in the national park Pirin, Bulgaria", funded by the Foundation European Economic Area (EEA Grants), a fire detection system PYROVIEW FDS was delivered and installed by the company DIAS Infrared GmbH.



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