VisionTIR
Multispectral Vision Technology

Corporate Presentation

June 2020

Corporate Presentation

About us

VisionTIR designs, develops and manufactures multispectral vision systems through image processing, in the visible and/or the IR spectrum (LWIR, SWIR, NIR) for industrial non-contact temperature measurement, process monitoring, quality control and early fire detection.

- Our innovative solutions feature high quality and rugged designs for the most challenging environments in industries such as cement, steel, chemicals, recycling, waste or power plants.
- Sales through worldwide distribution and OEMs.
- Turnover: 3 M€
- HQ located at Andalusian Technological Park, Málaga (Spain)
- Some references:

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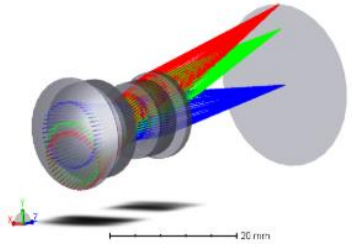
- Team of 23 people.
- Most of VisionTIR's team are engineers, including several PhD in Industrial Engineering, Computer Science and Physics, specialized in Computer Vision, Optoelectronics and Mechatronics.
- With more than **40 years of team's expertise** in the design of vision systems, the team of VisionTIR can guarantee the most advanced and market competitive technology for our customers.

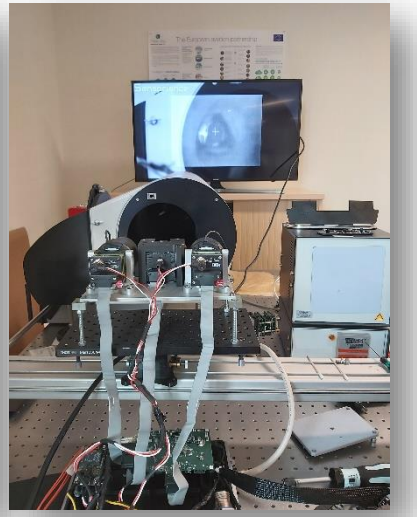
Corporate Presentation

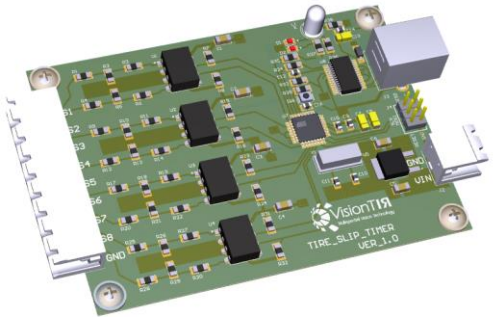
Know how and capabilities

Hardware

- Design and development of competitive hardware tailored to the application:
  - LWIR and NIR cameras
  - Electrical and mechanical equipment
  - Electronics
- Manufacturing of equipment and tests for certification.
- Optical and Optomechanical Systems' Design in different spectral bands in the visible and infrared range.

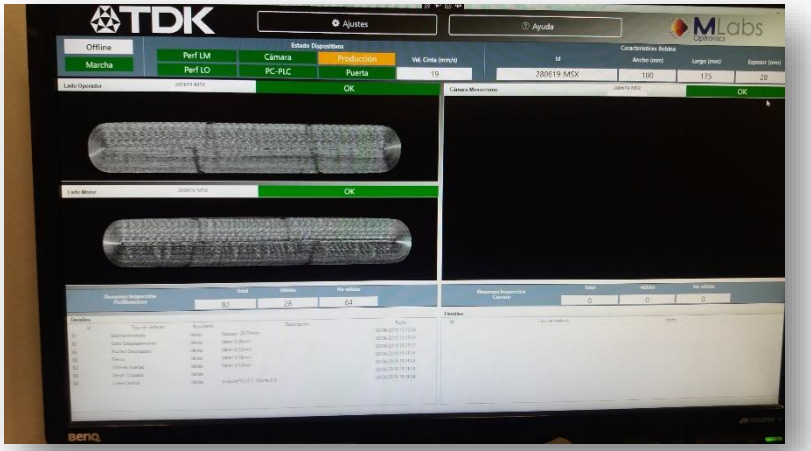


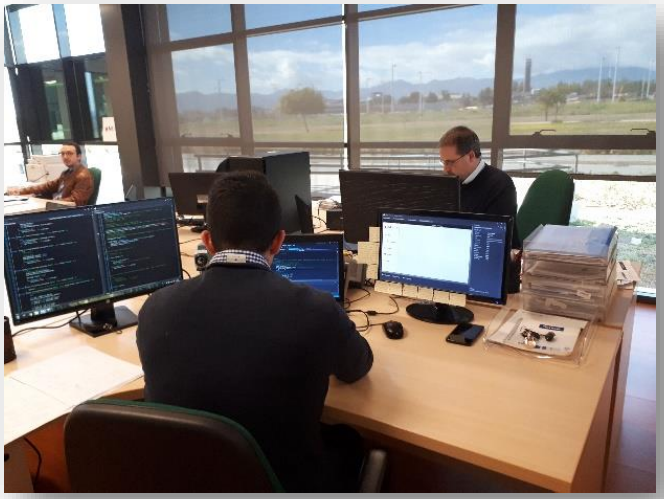


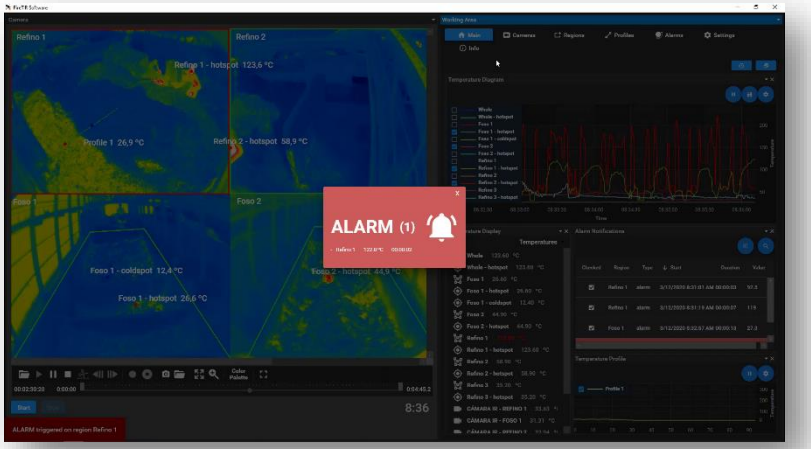


Software

- Design and development of software solutions tailored made to the needs of our customers.
- Use of software quality and verification tools.
- Image processing.
- Machine vision & machine learning.







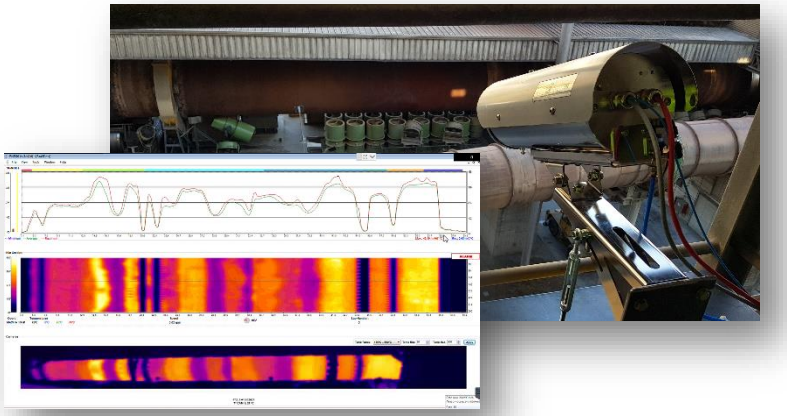
General Presentation

About us

We offer most innovative machine vision based systems for Industrial Process Monitoring & Quality Control. Our main solutions are:

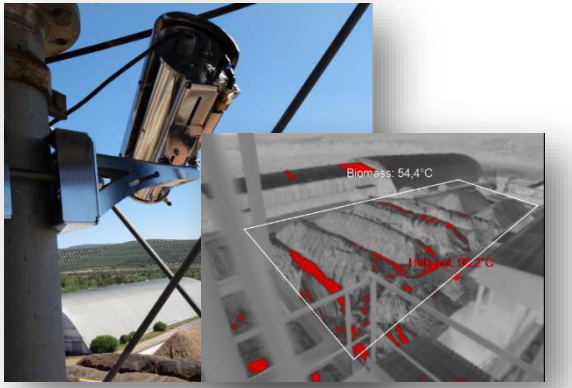
RKS300 System

Rotary kiln monitoring system



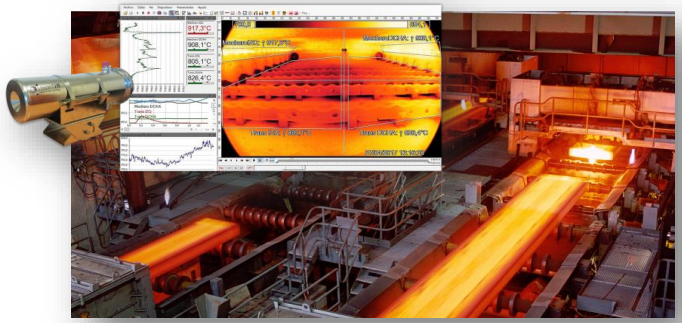
FireTIR System

Early fire detection system based in IR cameras



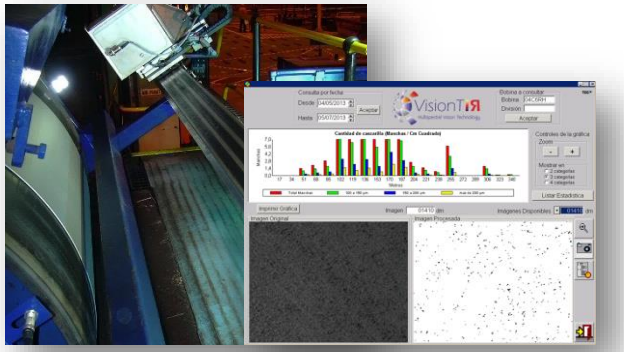
ProTIR System

Temperature monitoring system inside boilers, furnaces, etc.



MCQC100 System

Quality Control System for cold rolling



RKS300 System

Rotary Kiln Shell Monitoring System

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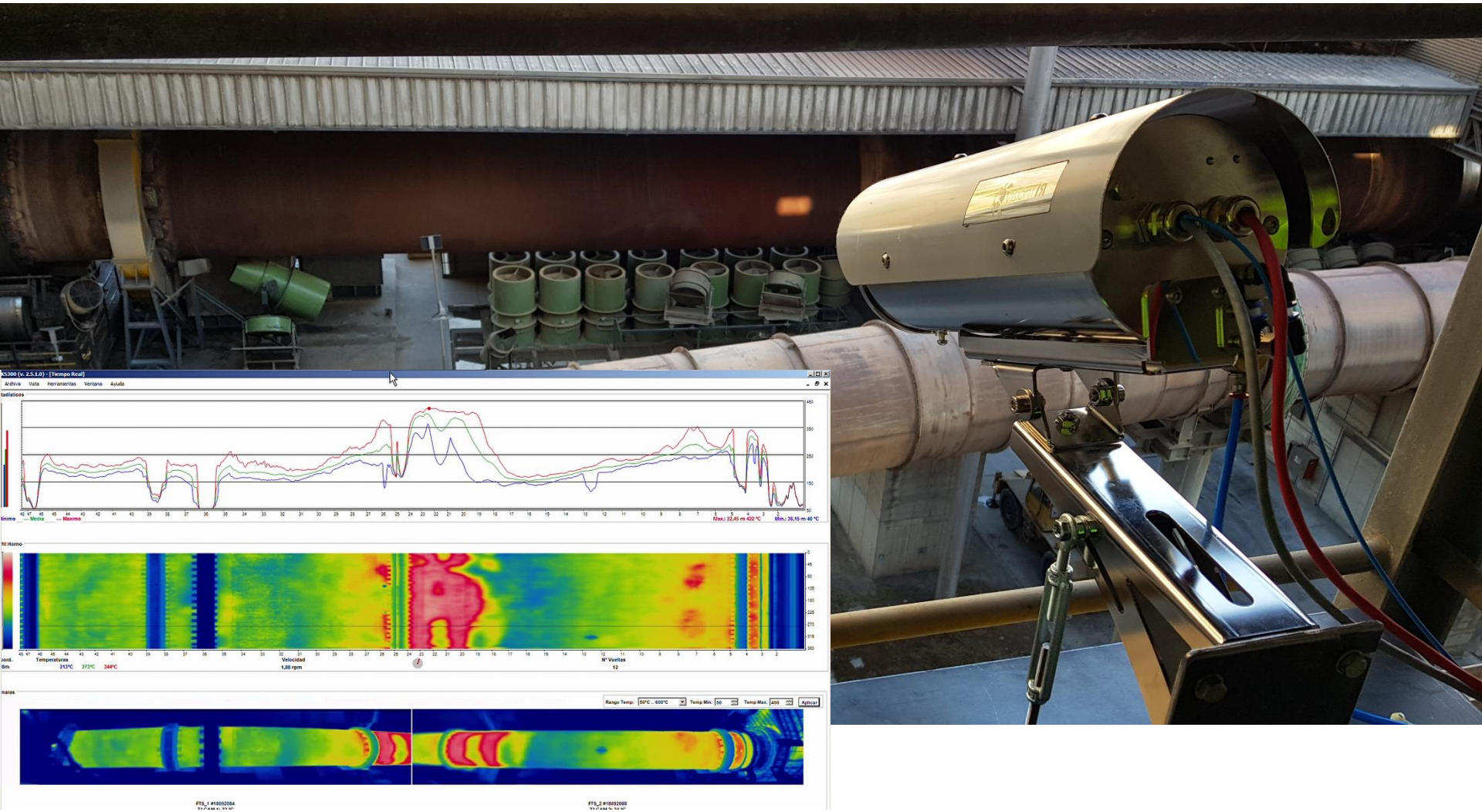
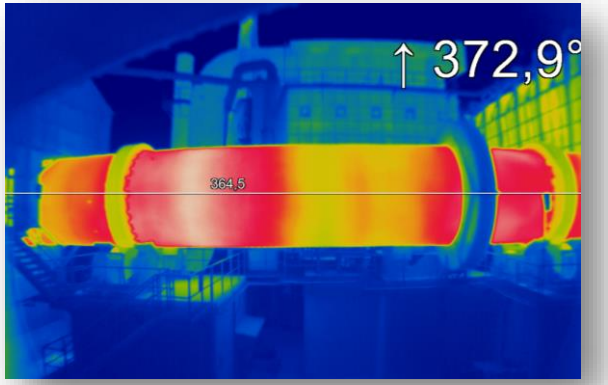


RKS300 System

Features

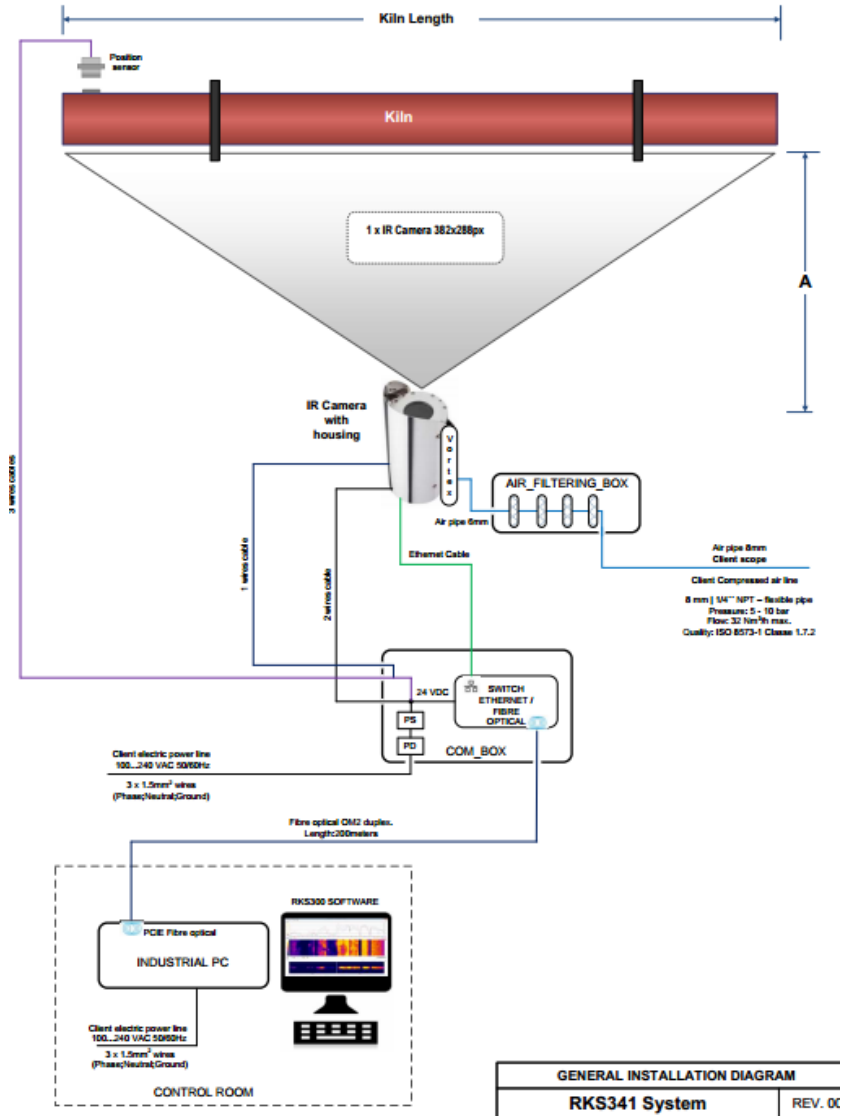
RKS300 is a thermal camera-based system that monitors kiln shell temperature in real-time and provides real-time inspection of the entire kiln length.

- **Up to 4 thermal cameras** can be connected to offer a **higher field of view for new larger kilns** (each camera with 110º view angle).
- **High resolution** (up to 3.200 measuring point per line) for refractory detail.
- Easy integration and communication of all data to Plant Control System (OPC, Profinet, Profibus, etc.)
- Highly modular, being able to add thermographic cameras or pyrometers to eliminate shadow areas.



RKS300 System

Complete system (2 IR cameras)



RKS300 includes:

- Thermal-cameras
- Protective housing
- Positioning sensor for camera sync with kiln's rotation
- Proximity sensor
- Pyrometers
- Control box
- Control room box
- PC and Display
- Wiring

RKS300 System

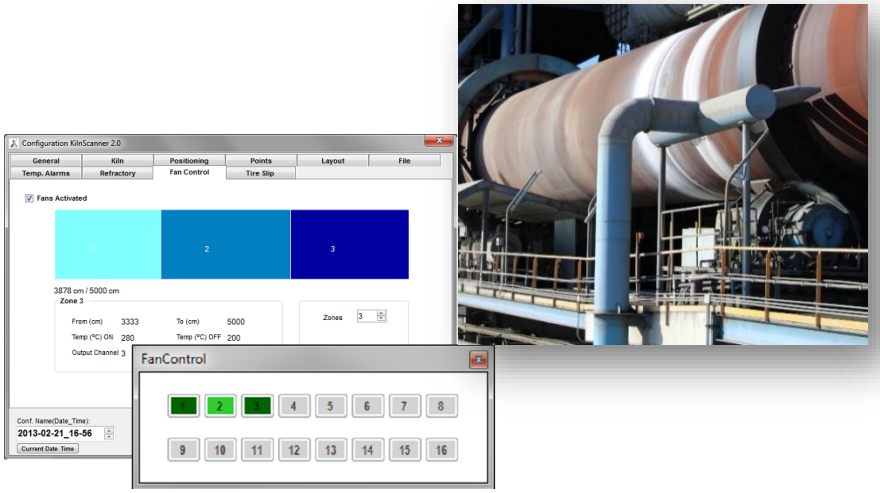
Thermographic system

- Radiometric infrared cameras with **different optics and resolution.**
- Rugged protective housing in stainless steel with **air purge and internal temperature control** (vortex cooling system and heater).
- IR germanium window.
- **No moving parts.**
- **Minimum maintenance.**
- **Calibration checks are not required**. Continuos auto-calibration at the exact point of temperature operation of the IR camera.

RKS300 System
Features

Shadow monitoring

Measures up to 8 FOV shaded areas by integrating IR temperature sensors.



Fan Control System

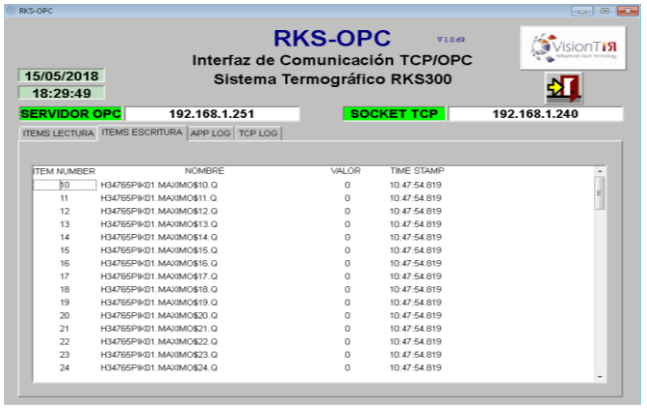
Prevents kiln shell deformation with active cooling, controlling up to 16 fans with independent actuators.

Tire slip monitoring

Monitors the displacement of up to 6 slip rings with regards to the synchronizing ring using high temperature proximity sensors.

RKS300 System
Performance

- Temperature Range: 20ºC – 900 ºC
- Resolution: from 478 to 3200 pixels/line
- Accuracy: +/- 2% or +/- 2ºC
- Available Optics: 13 – 90º.
- Frame rate: Up to 80 Hz
- 8 independent zones with temperature alarm and pre-alarm.
- Fans: Up to 16 zones
- Refractory: Up to 20 zones
- Slip Rings: Up to 6 zones
- Shaded areas: Up to 8 zones
- Data Integration and communication to different levels of the factory via OPC connection

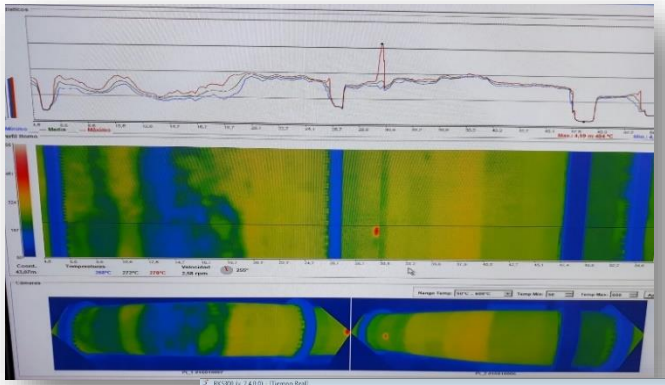


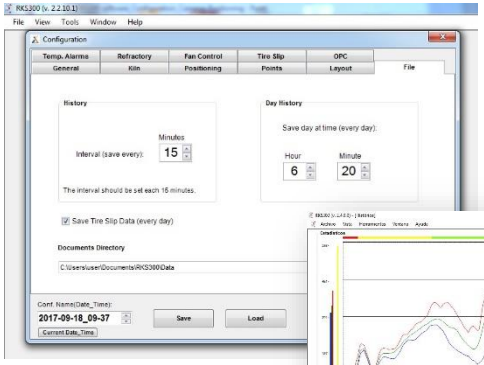
RKS300 System

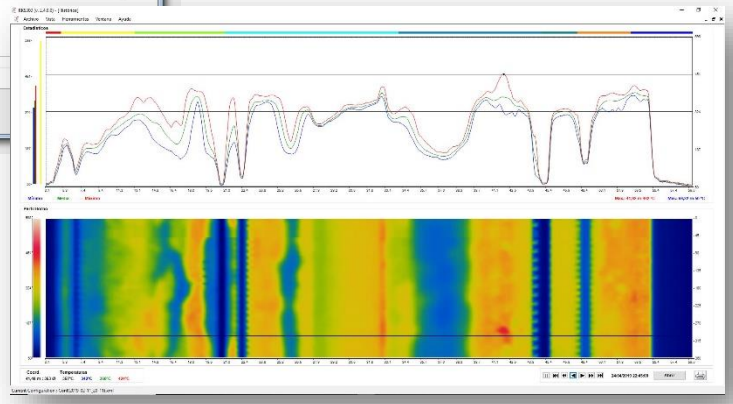
Software

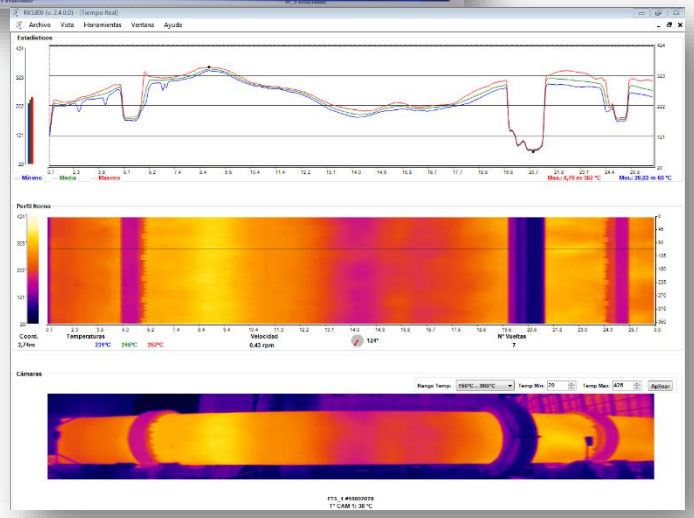
RKS300 software provides real-time thermal imaging for temperature monitoring, display, analysis and detection of hot-spots.

- Access to all temperature points giving its kiln's surface coordinates with very accurate measurement.
- Historic data evolution analysis
- Temperature trends and temperature difference view



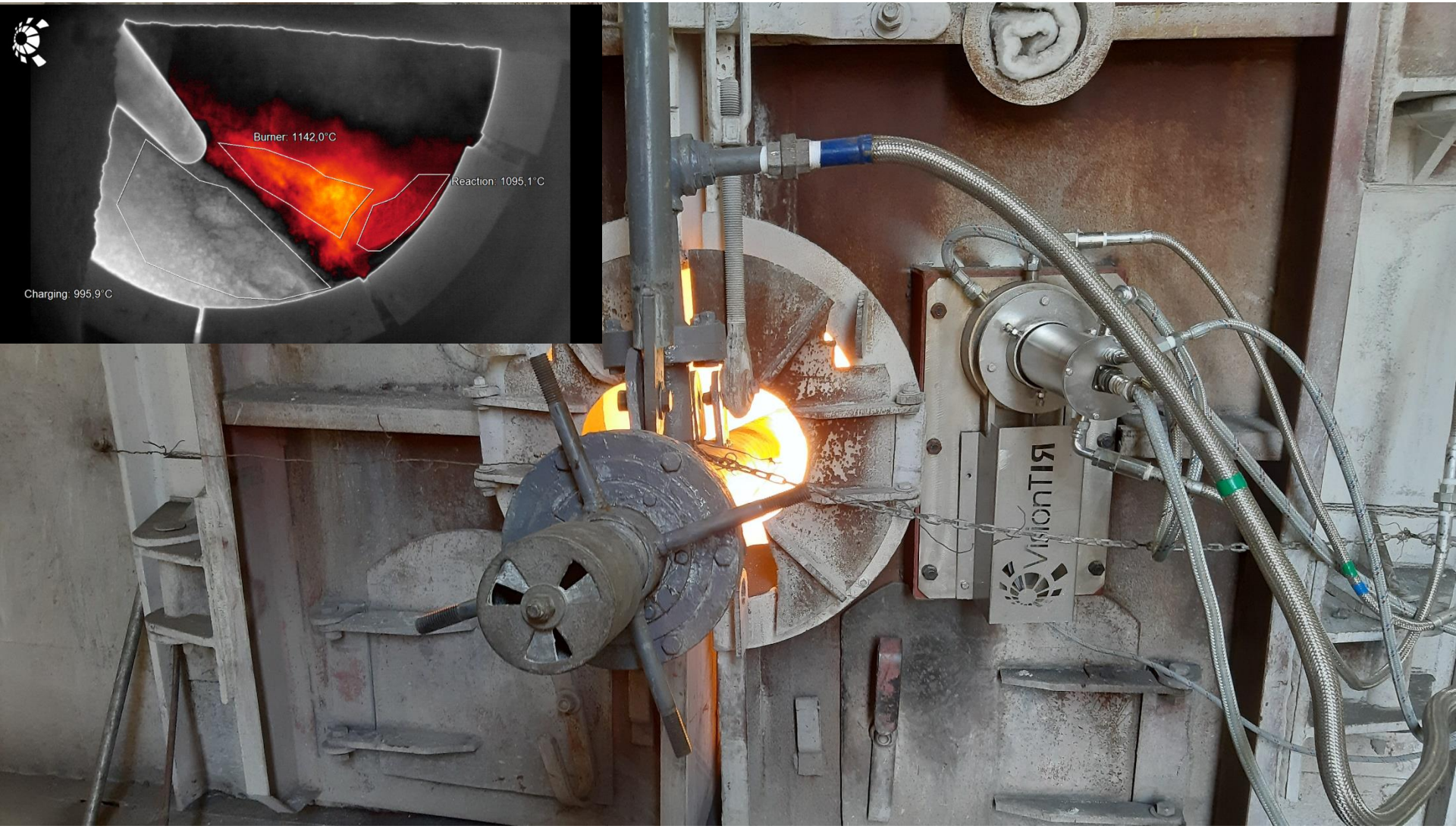






ProTIR System

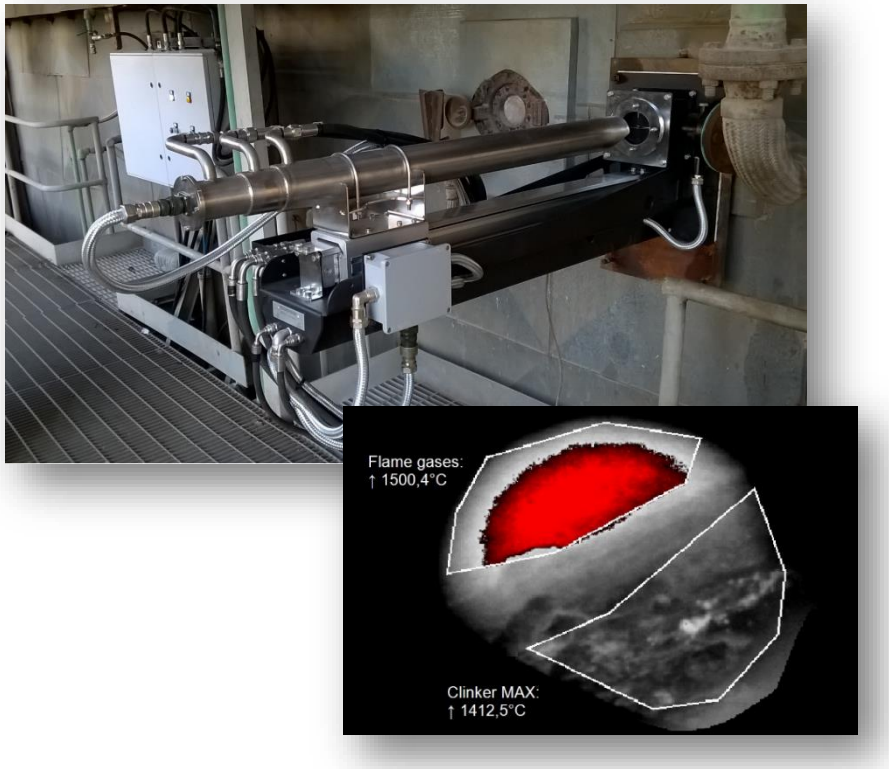
Thermal Imaging Solution



ProTIR System

Thermal Imaging Solution for burners

Based on high resolution thermal-cameras,ProTIR provides real thermographic imaging in high definition and temperature data from inside furnaces, kilns and coolers to the control room.



- ProTIR system **resists up to 2.200 ºC**
- **Different protection mechanisms available** (retractile, wall fixing, etc.) for trouble-free long term use.
- **Range of housing dimensions and mounting options**. There are different lengths and diameters available.
- Real time inspection at the highest resolution. **86º angle** (diagonal) for maximum inspection details. 764*468 pixel resolution, giving 357,000 data points.
- Rugged: **high temperature resistance and long term reliability** thanks to its high performance water and air cooling system. The air purge system maintains the lens clean for an accurate measurement
- Economize the production process

ProTIR System

Thermal Imaging Solution for burners

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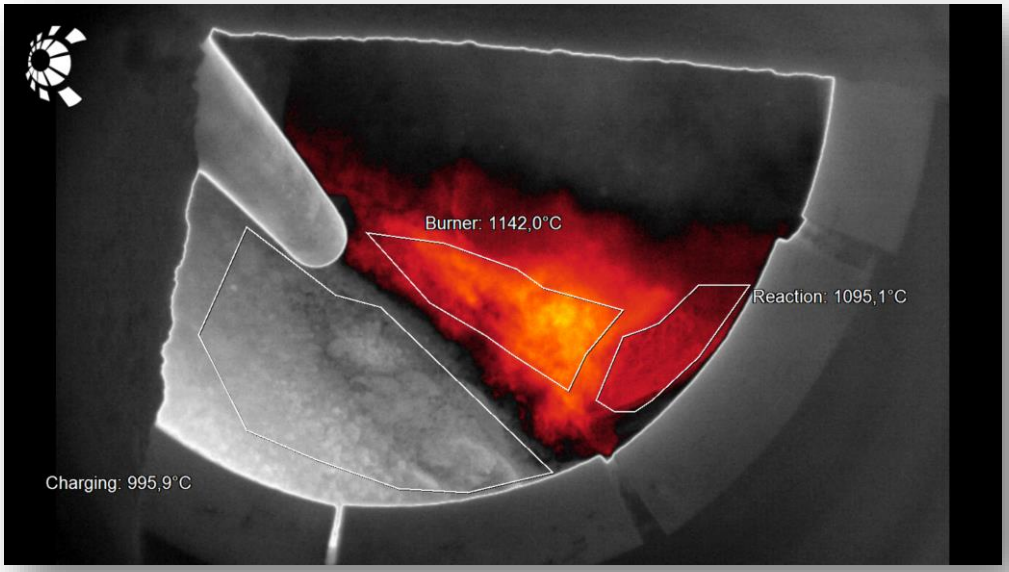
ProTIR System
Benefits

- High definition thermal images
- Radiometric images with accurate temperature information
- Flame shape optimization
- Energy efficiency savings
- Long term reliability
- Minimal maintenance
- 2 years warranty
- Automated alarm outputs
- OPC Connection.
- Real thermographic



ProTIR System
Performance

- Temperature range: 450 – 1800ºC (842 - 3272 ºF)
- Operating temperature: up to 2.200ºC (3,992ºF)
- Frame Rate: 80 Hz
- Spectral range: 0,92 – 1,1 µm
- Resolution: 764 * 468 pixels
- View angle: 86º (diagonal)
- Axial and angular view (60º)
- Data output: Ethernet or Fiber Optic
- Housing length: 350, 700 or 1200mm (13,8”, 27,6” or 47,2”)
- Housing diameter: 89mm or 101,6 mm (3,5” or 4”)
- Sealing: IP66
- Power supply: 24 Vdc
- Made by stainless steel AISI316L and Hastelloy C276
- Standard accessories: control cabinet, cables software, power supply, water/air cooling system, air purge system.

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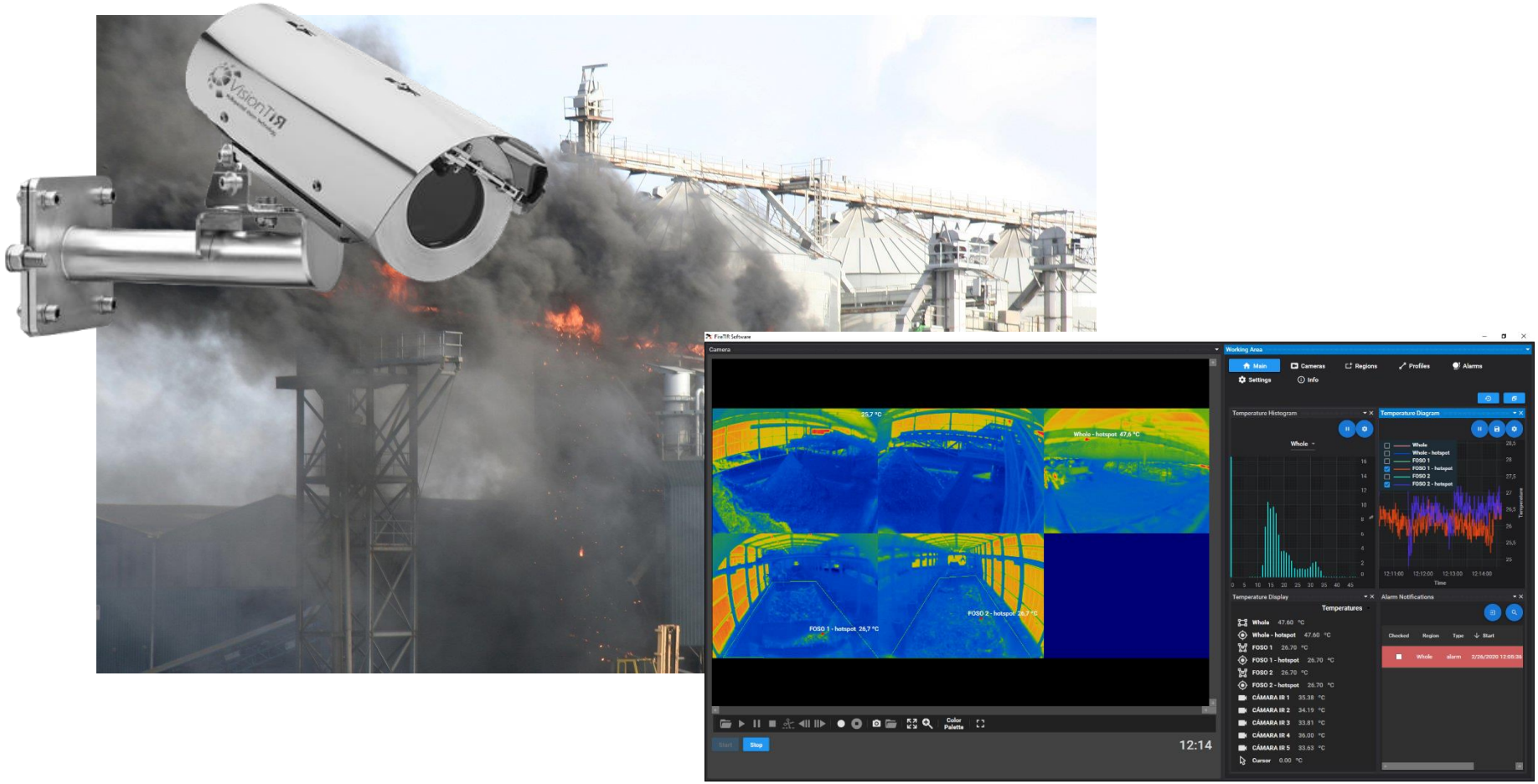


FireTIR System

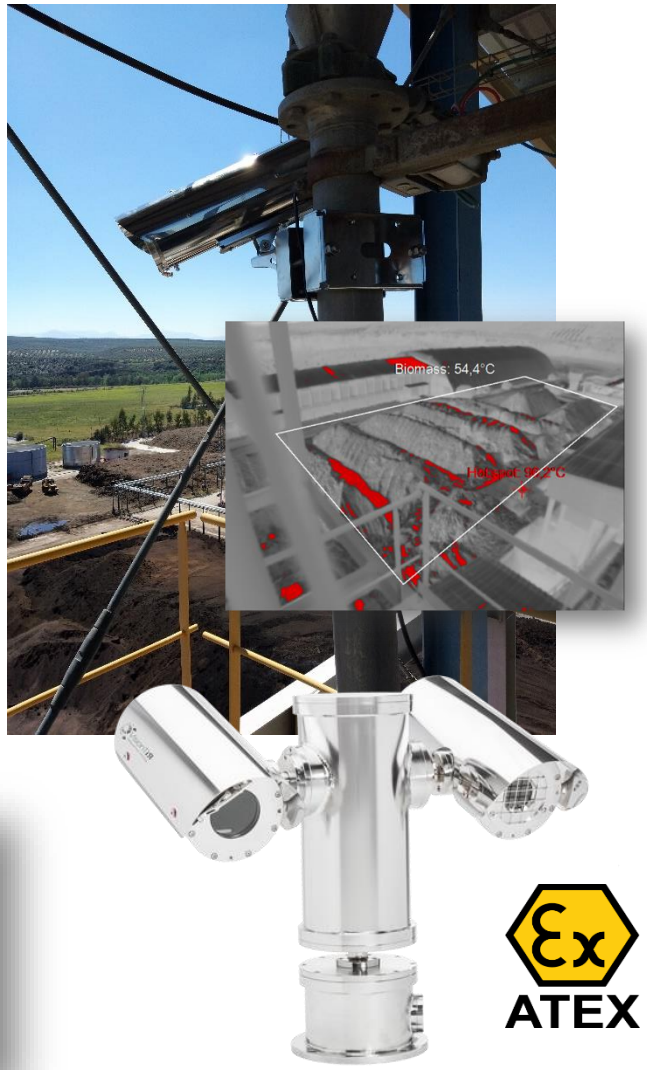
Early Fire Detection System

FireTIR System

Introduction

Modular and flexible solution based in high resolution radiometric infrared cameras (384x288 and 640x480 pixels) for early fire detection and temperature monitoring (indoor and on open-air grounds).

FireTIR Software offers real time inspection, full remote control of all infrared cameras, different inspection zones configuration, recording functions, identification of false alarms and automatic integration with extinguishing systems

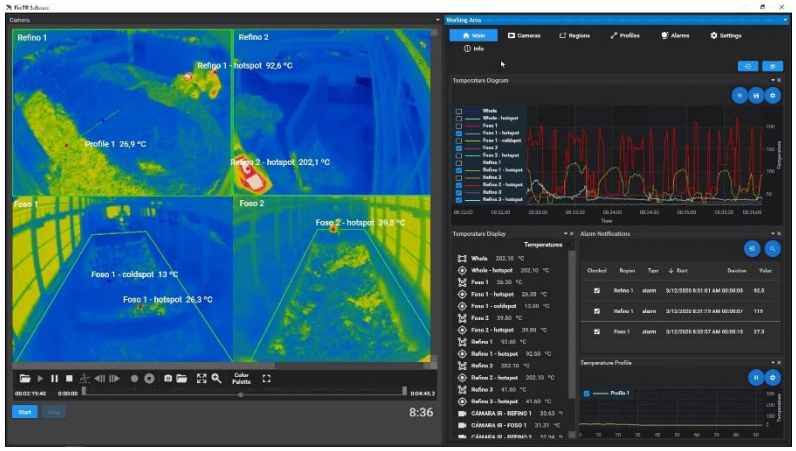


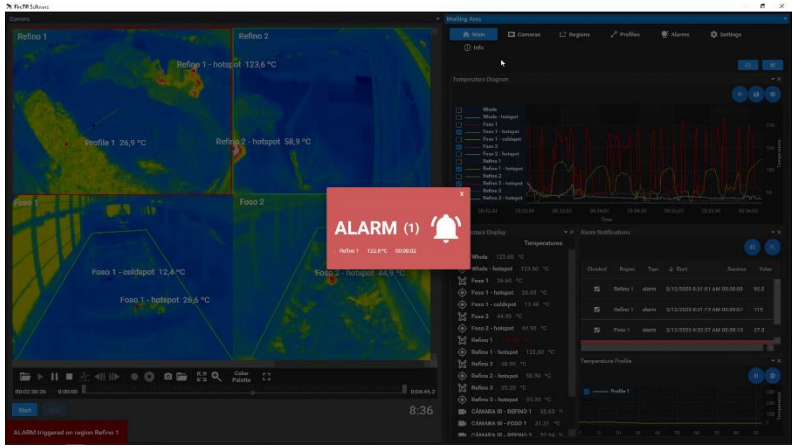
- **24/7 monitoring** of areas with a high risk of fire and explosions
- Early time detection of fire hazards before a fire breaks out
- **Customized installation and modular expansion.**
- **Maintenance-free operation.**
- **Recommended by leading insurance companies.**

FireTIR System
Software

FireTIR system has a full-featured Software. Main features are:

- **False Alarm Avoidance**: Advanced own-developed algorithms to identify moving vehicles and objects.
- **Integration with automatic extinguishing systems** (via Profinet, Websocket, etc.)
- **Full remote control** of IR cameras.
- **Fast and precise** temperature measurement.
- **Automatic** hot/cold spot detection.
- **Area configuration** for different inspection zones.
- **Alarm configuration:** Definition of Pre-alarms and alarms.
- **Recording and analysis functions:** Images, video and measured data.
- **Email notification** of alarms or alarms notification by digital outputs.





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