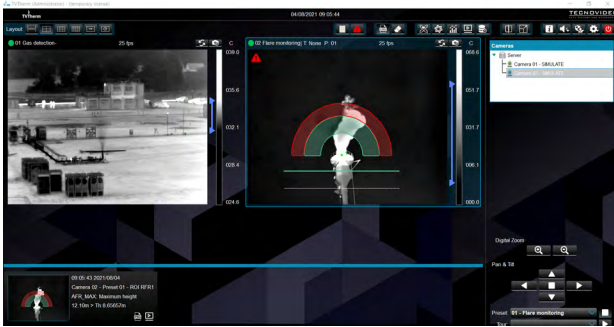


TVTHERM

INTELLIGENT SOLUTIONS FOR OIL&GAS



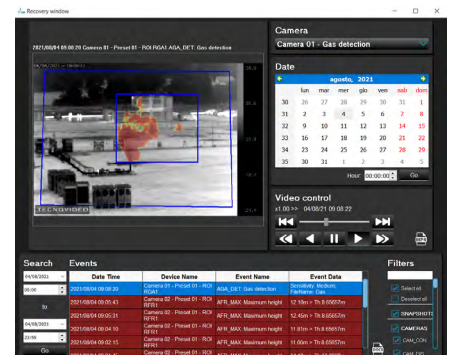
- ALL-IN-ONE SOLUTION FOR PROCESS MONITORING IN OIL&GAS
- GAS LEAK DETECTION/GAS QUANTIFICATION
- LIQUID SPILL DETECTION
- FLAME DETECTION, THERMOGRAPHY, SAFETY SURVEILLANCE
- FLARE MONITORING, TANK LEVEL MONITORING
- MACHINE LEARNING LATEST COMPUTER VISION ALGORITHMS
- EVENT VIDEO RECORDING & PLAYBACK
- CCTV SYSTEM INTEGRATION
- MODBUS PROTOCOL INTEGRATION
- SCALABLE ARCHITECTURE
- 24/7 UNMANNED MONITORING

TVTherm is an innovative software that continuously monitors industrial areas and automatically detects anomalous events. It's a hardware and software solution, based on infrared thermography and real-time computer image processing. TVTherm increases operations' efficiency, environmental compliance and personnel safety.

TVTherm thermal cameras can detect gas leaks and liquid spills, flames, hot/cold spots, people entering into dangerous areas or losing consciousness. It can monitor flares as well as tank levels. TVTherm can detect events accurately and at safe distance, covering wide areas and places that are difficult to reach with traditional contact instruments.

TVTherm thermal cameras have been specifically designed for the detection of industrial gasses and liquids. TVTherm software algorithms have been optimized to work in combination with TVTherm thermal cameras, for the best in class performance, reliability, low false alarm rate and detection speed.

TVTherm is a unique solution for oil&gas. One single thermal camera can combine multiple functions at the same time, for example detecting people entering into dangerous area while checking for gas leaks or flame presence: it's a perfect solution for complex industrial areas or unmanned production sites.



MAIN FEATURES



GAS DETECTION

Detection, localization and visualization of the gas leak. The detection area is adjustable based on camera position and distance



GAS QUANTIFICATION

Estimation of the Mass Flow Rate of the leakage



FLARE MONITORING

Continuous monitoring of the flare performance, detection of over-burning, pilot off, burning rain. Thanks to thermography it works also with invisible flares



SPILL DETECTION

Detection, localization, visualization of liquid spills



FLAME DETECTION

Detection of a fire point, with immediate localization and visualization. Large areas coverage, high immunity to false alarms



SURVEILLANCE

Detection of people entering into forbidden areas or crossing virtual fences



INTELLIGENT THERMOGRAPHY

Accurate temperature measurement and detection of hot/cold spots

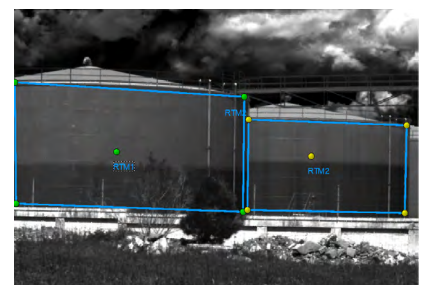
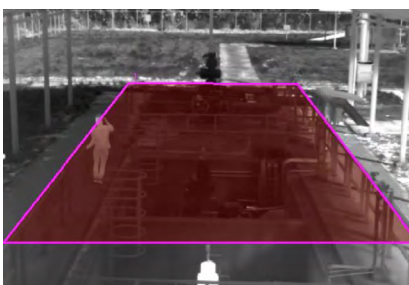
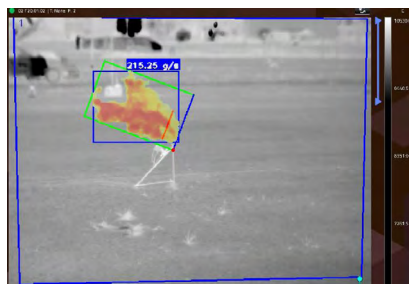
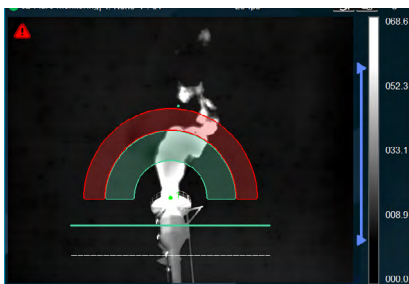


TANK LEVELING

Liquid level estimation in storage tanks

TVTherm can detect gas leaks from safe distance, immediately when the leak starts, independently from wind direction, with low false alarm rate. Thanks to its long detection range, TVtherm can cover wide areas, minimizing installation costs.

TVTherm flame detection can cover large areas and with a probability of detection greater than 98%, with best-in-class low false alarm rate, either at night or during the day.



THERMAL CAMERAS

TVTherm thermal cameras are available in stainless steel enclosure, suitable for permanent installation in the harshest industrial environments or certified ATEX/IECEX/UKCA/INMETRO/UL for installation in Hazardous locations.



EXF129TGD1/EXF129TGD2/SAF129TGD1/SAF129TGD2

Thermal camera and TVTherm software for:

- GAS LEAK DETECTION/QUANTIFICATION
- LIQUID SPILL DETECTION
- FLAME DETECTION
- INTELLIGENT THERMOGRAPHY
- SURVEILLANCE
- TANK LEVEL
- LWIR VGA THERMAL CAMERA, 20-35-50 mm LENSES, UNCOOLED
- NETD < 22mK, @30°C
- TVTHERM SOFTWARE LICENSE INCLUDED
- IP66/67 STAINLESS STEEL, SAFE OR HAZARDOUS AREA ENCLOSURE

EXF129TFM1/SAF129TFM1

Thermal camera and TVTherm software for:

- FLARE MONITORING
- LWIR QVGA THERMAL CAMERA, 20-35-50 mm LENSES, UNCOOLED
- NETD < 50mK, @30°C
- TVTHERM SOFTWARE LICENSE INCLUDED
- IP66/67 STAINLESS STEEL, SAFE OR HAZARDOUS AREA ENCLOSURE

EXF129TFD1/SAF129TFD1

Thermal camera and TVTherm software for:

- FLAME DETECTION
- INTELLIGENT THERMOGRAPHY
- TANK LEVEL
- SPILL DETECTION
- SURVEILLANCE
- LWIR QVGA THERMAL CAMERA, 20-35-50 mm LENSES, UNCOOLED
- NETD < 50mK, @30°C
- TVTHERM SOFTWARE LICENSE INCLUDED
- IP66/67 STAINLESS STEEL, SAFE OR HAZARDOUS AREA ENCLOSURE

	Flare Monitoring	Flame Detection	Intelligent Thermography	Gas Detection Gas Quantification	Spill Detection	Tank Leveling	Surveillance
TFM1	✓	✗	✗	✗	✗	✗	✗
TFD1	✗	✓	✓	✗	✓	✓	✓
TGD1	✗	✓	✓	<ul style="list-style-type: none"> • SF6 • METHANOL • REFRIGERANTS 	✓	✓	✓
TGD2	✗	✓	✓	<ul style="list-style-type: none"> • METHANE • SULFUR DIOXIDE • VOCs 	✓	✓	✓

TVTHERM FUNCTIONALITIES



SCALABLE ARCHITECTURE

Single server or distributed multi server architecture



MACHINE LEARNING ALGORITHMS

Use of sophisticated computer vision algorithms for little false alarm rate



24/7 UNMANNED MONITORING

Immediate alarm delivery to Command & Control Operation Center and activation of acoustic/visual alerts to operators
Email alarm notification Alarm Management



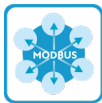
EVENT/VIDEO RECORDING & PLAYBACK

Automatically recording of event videos, easy playback by date/time and camera FTP support



CCTV SYSTEM INTEGRATION

ONVIF support, integration with most popular VMS for video recording by means of the CCTV system RTSP Real Time Streaming Protocol, for easy integration with any system



MODBUS AND HART PROTOCOL

Integration of MODBUS industrial protocol standard to send alerts to the Command & Control Operation Center.
Fully configurable by the end user through HMI HART protocol for communication of alarms and data



OPEN PLATFORM COMMUNICATION

Standard communication protocol with remote parameter configuration

ARCHITECTURE

