Traffic video detection and monitoring

Discover a wide range of applications

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1 Introduction

FLIR Systems: the world leader in thermal imaging cameras
FLIR Systems is the world leader in the design, manufacturing and marketing of thermal imaging systems for a wide variety of commercial, industrial and government applications.

Rapidly emerging markets and organization
Interest for thermal imaging cameras has grown considerably the last few years in a large variety of markets. More and more professionals are discovering that thermal imaging cameras are powerful tools that can help them to solve problems they are faced with. Through an active acquisition strategy FLIR Systems wants to be present in all emerging markets where thermal imaging can play a pivotal role.

Traffic video detection
One of the markets that is rapidly discovering the benefits thermal imaging has to offer is the traffic video detection market. To ensure full presence in this market, FLIR Systems acquired the former Traficon. The company has been a major player in the traffic market for more than 25 years.

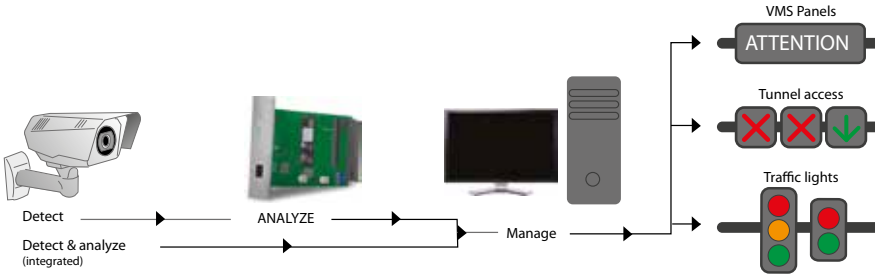
FLIR Intelligent Transportation Systems
FLIR Intelligent Transportation Systems, as the company is known today, has all the know-how to offer you the most advanced solutions for traffic video detection and monitoring. The ability to offer thermal imaging technology will position FLIR Intelligent Transportation Systems even stronger in the market.

2 Video detection and how it works

Traffic managers all over the world use technology from FLIR Intelligent Transportation Systems to monitor and manage traffic streams. Be it for monitoring motorists and pedestrians in urban areas, for detecting incidents on highways and in tunnels, or for traffic data collection purposes.

FLIR Intelligent Transportation Systems offers both the hardware and software for intelligent traffic detection and monitoring. The combination of a video camera or thermal imaging camera with intelligent video analytics provides traffic managers worldwide with a perfect solution for managing and monitoring traffic streams.

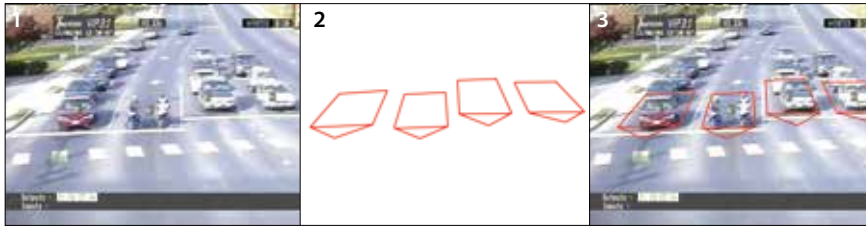
An installed video or thermal imaging camera sends an input signal to a detection unit. When the camera or the video image processing modules are set, detection zones are superimposed onto the video image.



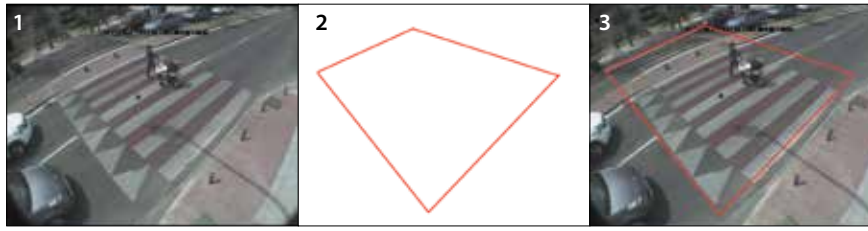
When a vehicle or a pedestrian enters a detection zone, the pixel value within that zone has changed. Based on that pixel difference, the detection is activated by the system. Dedicated algorithms generate various types of traffic information: presence and incident-related data, data for statistical processing, and data for pre- and post-incident analysis.

Traffic data, compressed images and alarms are transmitted to the technical control room. The system can be installed so that the video image processor triggers a third party system such as a traffic light, electronic traffic sign or any other VMS panel. When an alarm is generated, the traffic manager in the control room will receive a visual image of the scene, so that he or she can decide to take appropriate actions.

Vehicles



Pedestrians



1. A video camera is monitoring traffic. Its video signal is used as input for the detection unit.
2. During set-up of a video detector, detection zones are superimposed onto the video image.
3. Vehicles, pedestrians or bicyclists crossing the detection zones are detected.

3 Why use video detection for traffic applications?

Real-time analysis
Real-time analysis of video or thermal camera images allows for more efficient traffic management in tunnels, on highways and in urban areas. Traffic lights can be adapted in real time according to the current traffic flow. And in case of incidents, early detection enables fast intervention of rescue teams and prevents secondary accidents.

Video detection - seeing is believing
The combination of both numerical data and a visual image sets video detection apart from all other detection systems. The immediate visual feedback received from a video detection system allows the traffic manager to assess what is happening and to take appropriate action.

Cost-effective
Video detection systems for monitoring traffic streams are a very cost-efficient solution. Installation costs are low. All cameras can be easily installed on existing structures like traffic lights or on other existing poles.

Proven technology
Traffic managers worldwide have embraced the technology from FLIR Intelligent Transportation Systems for managing traffic streams. More than 100,000 video detectors are operational worldwide in over 70 countries.

FLIR ITS has Automatic Incident Detection (AID) installations in more than 600 tunnels. More than 750 kilometers of tunnels are continuously being monitored by our systems.

FLIR ITS solutions are being used for traffic light management at more than 20,000 intersections worldwide.

Efficient and reliable

FLIR Systems' video detection and monitoring systems are used all over the globe. Traffic managers appreciate their high incident detection rate and high detection speed. Moreover, the incidents are detected very fast. This is translated into a low Mean Time to Detect (MTTD) and a low False Alarm Rate (FAR).

Traditional video cameras as well as thermal cameras can be combined with FLIR's traffic video analytics.

4 Video detection for all traffic applications

Whether you are monitoring traffic in an urban area, on highways or in tunnels, FLIR Systems offers a solution to ensure and safe smooth traffic.

Intersection control
FLIR's video and thermal detection technology is a highly reliable and accurate alternative to loops and other detection technologies. FLIR sensors, both daylight and thermal, provide information on approaching or waiting vehicles at the intersection and as a result, they turn traffic lights into active management devices.

Pedestrian safety and mobility
Pedestrians are also very vulnerable in urban areas. Next to traffic light management, pedestrian detection can be used to activate in road warning lights or flashing beacons. Compared to continuously flashing lights, detection-based warning signal activation is much more effective in alerting motorists and enhancing the visibility of pedestrians.

Automatic Incident Detection (AID)
Effective incident management depends entirely on fast incident detection and fast incident verification. With each passing minute, the risk of another accident compounding the first one rises dramatically. FLIR's AID solution analyzes camera images in real-time and detects all major incidents within seconds.

Data collection & flow monitoring
FLIR Systems accurately monitors traffic flow speed to help keep highways safe by differentiating levels of service: fluid, dense, congested or stop & go. Queues during road-works can be monitored and travel time can be calculated based on information flows from Video Image Processors (VIPs).

5 Our customers testify

FLIR Systems has many customers that are active in a wide variety of markets. Large national traffic agencies, as well as city municipalities all over the world, have turned to FLIR to help them address problems of traffic safety and congestion.

All of them have discovered the benefits that FLIR video detection has to offer.

Many have chosen for a FLIR Systems solution. They have acknowledged that FLIR Systems produces the most advanced and the most user friendly systems.

On the following pages you will find a couple of short testimonials of users of FLIR thermal imaging cameras. It are these users that are the best promotion for thermal imaging technology and for FLIR Systems.

Do not take it from us. Read what the users of FLIR Intelligent Transportation Systems have to say.

TrafiCam vehicle presence sensors for Lima city streets

The city of Lima, Peru, is taking extensive measures to tackle its problem of heavy traffic congestion and pollution. As part of the solution, Lima city authorities recently called upon FLIR Intelligent Transportation Systems to help them improve urban traffic flows. TrafiCam vehicle presence sensors help streamline traffic at 218 road intersections and help monitor vehicle density, determine the peaks and throughs in the day's traffic, and regulate the traffic lights' green waves.

"Lima's traffic light network, including 218 road intersections, now features TrafiCam video detection sensors."

Heavy traffic in the streets of Lima in Peru.

TrafiCam units monitor intersections and feed their video data back to the city's traffic control center.

Reliable incident detection for the Northbridge tunnel, Perth, Australia

The Northbridge Tunnel, located along the 6.4 km Graham Farmer Freeway in Perth, Australia still uses the original video detection equipment that was installed more than 12 years ago. VIP detection units are monitoring the daily traffic movements through the tunnel, which currently include up to 100,000 vehicles per day.

The FLIR ITS detection system has performed very well ever since the Northbridge tunnel was opened in April 2000.

"After more than 12 years of operation, the FLIR ITS detection system is still the most reliable tool we have." Phil Martina, Control Room Manager, the Northbridge Tunnel.

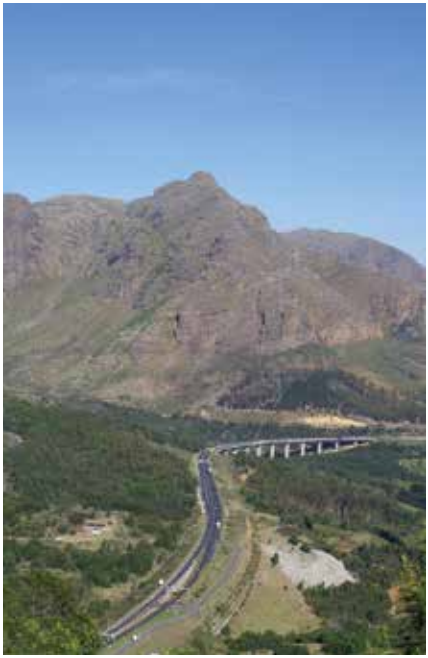
A rack with integrated VIP cards.

Failure-free operation for the Huguenot Tunnel, Capetown, South-Africa

At the start of the new millennium the existing inductive loop detection system in the Huguenot toll tunnel (Capetown, South-Africa) was replaced by a video-based Automatic Incident Detection (AID) system with VIP modules from FLIR ITS. The system has been working faultlessly ever since.

View inside the Huguenot tunnel in South-Africa.

Entrance of the Huguenot tunnel.



The system does an excellent job for incident detection, stopped or slowly moving vehicle detection, wrong-way driver detection and vehicle counting.

"Among the 12,000 vehicles we monitor daily, we frequently detect broken down or stopped vehicles. Thanks to the FLIR ITS system, we can quickly take the appropriate measures." Christo Van der Linde, technical manager, Huguenot tunnel.

Watching over traffic streams in the Ekeberg tunnel in Oslo, Norway

For more than 15 years now, FLIR ITS video detection technology has been watching over traffic streams in the Ekeberg tunnel in Oslo, Norway. When a bus coach caught fire inside the 1,500 m long tunnel in 1996, the Ekeberg tunnel video detection system generated an alarm and the tunnel operators and emergency services were warned in a matter of seconds.

The Ekeberg tunnel fire in 1996 put FLIR ITS video detection technology to the test.

"The FLIR ITS system has proved to be very stable over the past 15 years of operation. The great advantage of video detection over other technologies is that the operator has an immediate visual verification of the occurred incident." Åge Reiakvam, section manager at Siemens Intelligent Traffic Systems.

Video detection for intersection management in Salalah, Oman

Together with Oman engineering company Hi-Tech Projects LLC, FLIR realized the country's first video detection project ever. Always looking into modern and innovative solutions for their clients, Hi-Tech Projects LLC were convinced that it was time to make use of video detection technology instead of inductive loops, which were the only detection equipment used in Oman so far.

Integration of video detection systems in the city of Salalah, Oman.

FLIR TrafiCam

"Our video detection solution had to be capable of operating in harsh weather conditions, to be cost-effective and provide all necessary features for modern and effective traffic management. FLIR's vehicle presence sensor TrafiCam was up to the challenge." Ivan Krusic, Traffic Engineering & ITS Manager, Hi-Tech Projects.

TrafiCam proved to be an excellent alternative to inductive loops, as Oman's extremely hot weather conditions often lead to damaged asphalt, which in turn results in costly road works and re- installation of loops.

Incident detection for the Yamuna Expressway, India

The Yamuna Expressway, leading from New Delhi to Agra over a 165-kilometer stretch of concrete, features an all-inclusive traffic management system, commissioned by transportation specialist Efkon, and advanced automatic incident detection technology from FLIR Intelligent Transportation Systems.

By informing motorists and road authorities about possible incidents in time, secondary accidents can be avoided.

The control room of theYamuna Expressway.

The Yamuna Expressway in New Delhi stretches over 165 kilometer

"Thanks to FLIR ITS, the Yamuna Expressway will not only provide commuters with a smooth journey, but also a safe one. Traffic cameras equipped with the FLIR ITS VIP-T incident detection system are monitoring the expressway for accidents or any irregularity that might occur," Jeevit Vashishtha, Business Development Manager, FLIR Intelligent Transportation Systems, India.

Kunshan City, China, relies on TrafiCam x-stream to keep the traffic flowing.

Kunshan city authorities are now relying on FLIR's vehicle presence sensor TrafiCam. In this project, 219 TrafiCam x-stream units have been installed to collect traffic data of incoming vehicles at intersections.

Kunshan relies on TrafiCam x-stream to keep the traffic flowing.

Covering three to four lanes, the TrafiCam x-stream sensors have been installed at existing road infrastructures, such as road signs, road lighting poles, and traffic light poles.

Thanks to FLIR ITS vehicle presence sensors, a smooth traffic flow is assured.

FLIR's TrafiCam x-stream vehicle presence sensors can be mounted easily on existing infrastructure.

Monitoring the Middle East's Longest Tunnel

The overall goal of the Sheikh Zayed Tunnel (Abu Dhabi, UAE) is to reduce congestion. FLIR delivered 174 advanced network video encoders with integrated Automatic Incident Detection capabilities for the Video Incident Detection System (VIDS) component of the project. For the traffic management component, known as the Video Vehicle Detection System (VVDS), FLIR delivered 45 network video encoders.

Spanning 3.6km in total, including a 2.4km covered section, the Sheikh Zayed Tunnel is the Middle East's longest road tunnel.

A view inside the Sheikh Zayed Tunnel in Abu Dhabi, UAE.

For the Sheikh Zayed Tunnel, FLIR was tasked with providing technology both for incident detection and traffic management.

Smart traffic management in Darmstadt, Germany

TrafiCam x-stream sensors detect the presence of vehicles in the city of Darmstadt. Data about queues and congestion levels is continuously collected and fed into the traffic management system. Also pedestrian presence sensors from FLIR are used to manage traffic lights and help make vulnerable road users make a safe crossing.

FLIR TrafiCam x-stream sensors installed on a pole in Darmstadt, Germany.

"Based on the data visualized and reported by the Flux system, Darmstadt operators can optimize city traffic lights according to peak hours, and gather data about queues during roadworks."
Benjamin Schiereck, sales manager, FLIR Intelligent Transportation Systems, Germany.

Flux is a comprehensive traffic and surveillance monitoring solution for your city or road network.

Traffic light control in Jakarta, Indonesia

In order to tackle traffic congestion, Jakarta authorities laid out an ambitious and very comprehensive master plan. As part of this set of measures an Area Traffic Control System (ATCS) was implemented. As a result traffic flows are improved and risk of congestion reduced. Currently 135 TrafiCam sensors and 25 TrafiCam x-stream sensors have been installed at some 37 intersections across the city of Jakarta.

TrafiCam sensors help meet Indonesia's ambitious traffic management plans.

The Jakarta traffic control room.

When there is a traffic jam at a certain intersection, TrafiCam can feed the ATCS system with vehicle presence information and allow it to directly alter the frequency and duration of red and green lights at that intersection.

FLIR ITS TrafiCam and TrafiCam x-stream sensors installed in Jakarta.

New Tyne Crossing (UK) engages latest VIP-IP technology

The New Tyne Crossing project is one of the biggest transport infrastructure projects currently active in Great Britain. The tunnel has been designed for a daily traffic throughput of 24,000 vehicles and is currently serving 38,000 customers a day during peak periods. Currently 83 VIP-IP modules analyze the IP video streams to alert operators if something goes wrong inside the tunnel.

A view inside the New Tyne Crossing tunnel, one of the most prestigious UK transportation projects.

The New Tyne Crossing is a prestigious UK project to develop a second vehicle tunnel under the River Tyne and to refurbish the existing vehicle tunnel.

The New Tyne Crossing control room is one of the most modern control rooms in the UK.

Entrance of the New Tyne Crossing tunnel.

The integration of FLIR ITS technology is a huge step forward in making the Tyne tunnels the safest in the UK.

Smart intersection control in Mumbai and Chennai, India.

The cities of Mumbai and Chennai are investing heavily in advanced technologies and intelligent solutions that optimize traffic management. Nearly 700 vehicle presence detectors (both TrafiCam and TrafiCam x-stream) have been installed in the city of Mumbai. In Chennai, 100 TrafiCam detectors are installed and operational.

Installation of a FLIR TrafiCam sensor.

FLIR sensors are used as part of the Area Traffic Control (ATC) project to ensure that the traffic flows safer and smoother.

Based on the information coming from TrafiCam and TrafiCam x-stream, the city's traffic management system alters traffic signal cycles in real time to respond to changing traffic conditions.

Vehicle presence detection on the Samuel Beckett Bridge (Dublin, Ireland)

The Samuel Beckett Bridge in Dublin (Ireland) is a cable-stayed bridge, with a total length of 120 meters. The bridge has been designed on a massive pivot, which allows it to open through an angle of 90 degrees, allowing ships to pass through. To ensure that there are no vehicles on the bridge before opening it to ships, Dublin City Council installed multiple TrafiCam x-stream sensors.

TrafiCam x-stream is a cost-effective and reliable alternative for traditional inductive loops.

Via detection zones (virtual loops) and detection outputs, vehicle presence information is transmitted to the controller. When TrafiCam x-stream is not detecting any vehicle on the bridge, the controller can instruct safely to open the bridge.

Passive detection provides active pedestrian safety in Maryland, USA

The Department of Public Works & Transportation (DPW&T) of Prince Georges County (Maryland, USA) is using C-Walk pedestrian presence detectors to increase safety at a busy midblock crossing. The C-Walks were installed by Control Technologies (Florida, USA). The purpose of the C-Walk is to detect every person as they approach the crosswalk from either side, without requiring them to push a button.

Video detection technology is passive – no action is required by the pedestrian – and this was desired because the pedestrians were simply not using the 'push-button'.

FLIR C-Walk installed at the top of the traffic lights.

Pedestrians can cross safely thanks to the FLIR C-Walk.

"Set-up and operation are a snap with the C-Walk system." Jim Rhine, DPW&T

Smooth traffic between Denmark and Sweden

As a link between Copenhagen (Denmark) and Malmö (Sweden), the 16.4 km Öresund bridge-tunnel is one of the longest in Europe. FLIR technology provides Automatic Incident Detection with more than 180 cameras. Stopped vehicles, queues and wrong-way drivers are seamlessly detected.

Video detection is key in keeping traffic run smoothly.

The Öresund bridge-tunnel features a fully redundant video detection system. The system will still be operational in the event of a component failure (such as power failure, network communication failure, and so on), by having back-up components that perform duplicate functions.

The 16.4 km Öresund bridge-tunnel is one of the longest in Europe.

Real-time traffic updates for Singapore roads

Singaporean transport authorities are increasingly coping with congestion and road safety issues. The country is a vast urban area and thus a perfect fit for FLIR's urban vehicle detection technologies, designed to enhance safety and alleviate congestion. 350 video image processing boards installed along Singapore's arterial roads help provide motorists with real-time information on traffic conditions.

FLIR vehicle detection boards are feeding the Expressway Monitoring and Advisory System (EMAS) along Singaporean arterial roads.

"The FLIR detection technology has proven to be performing extremely well in the difficult Singaporean conditions. Canopy shadows and tropical weather conditions: our detectors handle it very well." Koen Soenens, International Business Development Manager, FLIR Intelligent Transportation Systems.

FLIR ITS processing boards help to ensure the smooth flow of traffic in Singapore.

Enhanced pedestrian safety for Auckland, New Zealand

FLIR's pedestrian presence sensors are the preferred solution to help enhance safety of vulnerable road users in Auckland, New Zealand. The detection of pedestrians by C-Walk and SafeWalk sensors activates in-road lighting, making crossing pedestrians extra visible for oncoming motorists.

FLIR's C-Walk and SafeWalk video sensors activate on-road markers along a zebra crossing when a pedestrian is in range.

A FLIR SafeWalk detects pedestrians in Auckland, New-Zealand.

Detection-based warning lights are very effective in enhancing driver awareness.

FLIR's Automatic Incident Detection system monitors 22 tunnels in the Paris region

FLIR Intelligent Transportation Systems delivered its Automatic Incident Detection (AID) solution to the Direction Inter-Départementale des Routes d'Ile-de-France (DIRIF) for integration in 22 tunnels in the Paris Region. Currently 1,400 cameras linked to the FLIR AID system are monitoring the heavy traffic driving through the Paris tunnels.

Thanks to FLIR's intelligent surveillance technology, the operator is instantly warned about any 'abnormal traffic behaviour' inside the tunnel, which allows him to quickly launch all necessary steps to prevent an accident from escalating.

Busy traffic in Paris, France.

The strength of this camera-based intelligent technology is its unique fast detection rate in combination with the direct visual feedback.

Automatic incident detection helps to avoid secondary accidents.

Intersection management for Colorado Springs, USA

The Colorado authorities have been on a mission to replace pavement loops with video detection technology for signal control. The plan has had the desired effect. Complaints, as well as costs, are down. After installing over 350 intersections, Colorado Springs is convinced it made the right choice to replace the in-ground loops with video detection.

FLIR VIP-T modules are used for vehicle presence detection & traffic data collection in Colorado Springs.

"We have improved our abilities and installation procedures, improved service to our citizens, reduced delay caused by constant calls from broken loops, and reduced signal installation and maintenance costs."

Incident detection and data collection for ITIS Kuala Lumpur

The Malaysian government has been making substantial investments in infrastructure projects to improve quality of life for its people and to make its Federal Capital, Kuala Lumpur, a world-class city. A major project, undertaken by City Hall KL, is the Integrated Transport Information System (ITIS).

ITIS helps reduce traffic congestion, improves traffic management, and enhances public transportation.

The highway to Kuala Lumpur is monitored 24 hours a day, 7 days a week with FLIR ITS technology.

"FLIR Intelligent Transportation Systems delivered 932 VIP modules for data monitoring and incident detection and 126 VICCOM/E modules sending data, images and "incident movies" to the Traffic Management Centre."

US Departments of Transport (DOT) adopt thermal imaging cameras for traffic monitoring

US Departments of Transport are adopting thermal imaging cameras for traffic monitoring. Thermal cameras are immune to direct sunlight, night-time headlight glare, reflection from wet surfaces, shadows, fog and many other weather-related phenomena. Among many other installations in US DOTs, FLIR provided thermal imaging cameras for San Antonio, Texas, Lancaster, California, and the Arizona DOT.

FLIR thermal technology is used by several hundred agencies and deployed in 45 of the 50 states.

Daylight image and thermal image of an intersection. Note that the thermal images show much more detail, even when the sun is shining on the wet road.

FLIR has offered its thermal cameras as a drop-in replacement for legacy video cameras. They are compatible with any detection technology.

Monitoring traffic at the Rion-Antirion Bridge, day and night

The Rion-Antirion Bridge in Greece is the world's longest cable-stayed bridge with a suspended deck. To ensure safety on the bridge and make quick interventions possible in case an accident happens, the bridge makes use of smart Automatic Incident Detection technology and thermal imaging cameras from FLIR Systems.

When 10,000 vehicles cross the Gulf of Corinth on a daily basis, you can safely say that the Rion-Antirion Bridge is an important thoroughfare for the region.

Stopped vehicle detection

"The use of thermal cameras dramatically reduced the number of false alarms and thus improved the performance of the overall AID system."

Pedestrian detection

A total traffic monitoring solution for Marseille

FLIR Intelligent Transportation Systems has equipped both the Prado Carénage Tunnel and the Prado Sud Tunnel in Marseille with Automatic Incident Detection (AID) technology. Thanks to FLIR technology, it will be safer and more efficient to cross the city of Marseille by road.

57 cameras in the Prado Sud tunnel and 95 cameras in the Prado Carénage tunnel are monitoring traffic for all types of incidents.

FLIR's Flux video management system collects and visualizes a wide range of traffic data, events and alarms from FLIR or other detection modules.

FLIR technology is now monitoring all current tunnels in the city of Marseille.

"FLIR Systems offers a complete detection and monitoring solution, including automatic incident detection, surveillance cameras, mobile cameras, recording capabilities and visualization."

Smart traffic sensors help alleviate city congestion in Moscow, Russia

In order to tackle its heavy traffic congestion problem, the city of Moscow recently started with the development of an Intelligent Transportation System. To smoothen the traffic flows along signalized intersections, Moscow called upon the expertise of FLIR Systems. Over 3,000 TrafiCam x-stream vehicle presence sensors will make sure traffic signal cycles are adapted to the actual traffic.

More than 3,000 TrafiCam x-stream vehicle presence sensors will be installed at various busy road junctions controlled by traffic signals.

TrafiCam x-stream manages to provide good detection results, even in the heavily polluted conditions of Moscow.

"Based on the information coming from the TrafiCam x-stream sensors, this state-of-the-art ITS system can alter traffic signal cycles in real time to respond to changing traffic conditions."

TrafiCam x-stream is an IP-addressable device that provides MPEG-4 or H.264 color streaming video at full frame rate.

6 FLIR Intelligent Transportation Systems: a wide range of traffic detection and monitoring solutions

FLIR ITS produces a wide variety of detection and monitoring solutions that are especially developed for the most demanding traffic applications. No matter if you want to monitor crossroads, do incident detection in tunnels, collect traffic data for analysis or any other application, FLIR ITS can offer you the correct product for the job.

FLIR ITS also offers thermal imaging cameras that need no light whatsoever to produce a crisp image. This makes them perfect for traffic applications. Day and night.

FLIR FC-Series T thermal imaging cameras.

FLIR thermal imaging cameras are commonly integrated in traffic video detection and monitoring solutions. Needing no light at all to produce an image they can be used for a wide variety of traffic applications.

TrafiCam Series - Vehicle presence sensors

The TrafiCam series of vehicle presence sensors combines a CMOS camera and video detector in one. The series includes two products:

- **TrafiCam:** vehicle presence sensor for standalone use
- **TrafiCam x-stream:** vehicle presence sensor and data collector with video streaming

C-Walk / SafeWalk – Pedestrian detection

FLIR ITS pedestrian sensors are improving safety and efficiency in urban areas all around the world. Detection of pedestrians allows for the dynamic control of traffic lights and warning lights, such as flashing beacons or in-road lighting. The result? More safety, and at the same time less unnecessary delays to both pedestrians and motorists.

VIP series - Multi-functional video detection boards

The VIP series offers multi-functional Video Image Processing modules for traffic control. VIP boards integrate automatic incident detection, data collection, recording of pre and post incident image sequences and streaming video in one board. VIP modules have been installed for road and tunnel projects all over the world and are available to work together with analog, IP and HD cameras.

TrafiBot - Box camera with integrated video analytics and dual H.264 video streaming

FLIR's TrafiBot Series combines field-proven video detection algorithms with advanced camera optics and powerful processing technology in a single housing. TrafiBot (with D1 resolution) and TrafiBot HD (with 1920 x 1080 resolution) are network box cameras that provide superior image quality, embedded AID analytics as well as multi-stream encoding.

7 Software

FLIR ITS not only offers you the hardware but also the software that is needed for your demanding traffic monitoring applications.

Flux - Video detection management software
Flux is an intelligent software platform for use with a FLIR video detection system. Flux collects traffic data, events, alarms and video images generated by the video detectors.

Key benefits
- Fast, reliable and stable system
- Easy installation, Windows and Linux compatible
- User-friendly configuration and operation
- Browser-based Graphical User Interface
- Expandable, scalable system
- Open architecture for easy integration with larger traffic management systems

Flux collects and visualizes a wide range of traffic data, events and alarms

Flux can easily record video sequences.

The main goal of Flux is to manage and control all traffic information generated by various detectors and to make it useful, meaningful and relevant to the user. Flux provides a user-friendly interface composed of a monitoring and a reporting application and enables real-time monitoring of events and alarms. All event info is automatically documented and visualized in a straightforward way, allowing the operator to manage each traffic situation efficiently.

FLIR ITS technology is used worldwide to ensure smooth traffic flow, automatic incident detection and to avoid congestions.

8 Thermal imaging: a wide variety of applications

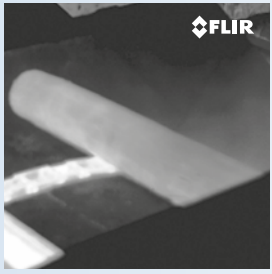
As more and more people are discovering the benefits that thermal imaging cameras have to offer, volumes have gone up and prices are coming down. This means that thermal imaging cameras are finding their way to more and more markets. FLIR Systems has the correct camera for every application.

Security

Our security customers benefit from thermal imaging cameras because they help them to secure facilities like ports, airports, nuclear facilities, warehouses, estates and many more against intruders.

Electrical / Mechanical

In industrial environments thermal imaging is used to find hot-spots that can lead to failures in electrical and mechanical installations. By detecting anomalies at an early stage production breakdowns can be avoided and money can be saved.

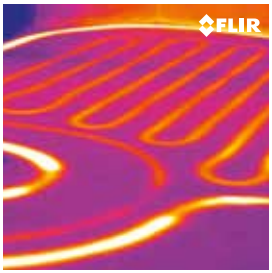


Cores & components

FLIR Systems also markets a wide variety of thermal imaging cores that other manufacturers integrate in their own products.

Building diagnostics

Building professionals look for insulation losses and other building related defects with a thermal imaging camera. Finding insulation losses and repairing them can mean huge energy savings.

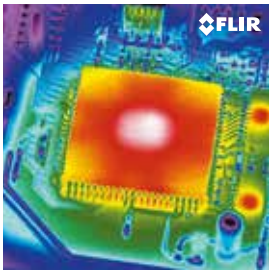


Border security

Border security specialists protect their country's border against smugglers and other intruders. With a thermal imaging camera they are able to see a man at a distance of 20 kilometers away in total darkness.

Science / R&D

Thermal imaging also plays a pivotal role in both applied and fundamental R&D. It can speed up the design cycle so that products can go to market faster. For these demanding applications FLIR Systems markets extremely high performance thermal imaging cameras.



Maritime

On both yachts and commercial vessels, FLIR thermal imaging cameras are being used for night time navigation, shipboard security, man-overboard situations and anti-piracy.

Transportation

FLIR thermal imaging cameras are installed in cars for driver vision enhancement. They help the driver to see up to 4 times further than headlights. They are also installed in specialty vehicles such as fire-trucks, mining and military vehicles.

Automation / process control

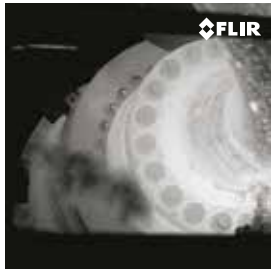
Thermal imaging cameras are also installed to continuously monitor production processes and to avoid fires.

Law enforcement

Police officers use the power of thermal imaging to see without being seen. They can easily find suspects in total darkness without giving away their position.

Optical gas imaging

Gas leaks can also be detected seamlessly with a thermal imaging camera.



Personal vision systems

Outdoor enthusiasts can see clearly at night with the help of a thermal imaging camera.

Firefighting

Firefighters are able to see through smoke. It helps them to find victims in a smoke filled room and also to see if fires are well extinguished. It helps them to save lives.

9 Send us your application

On the previous pages you could read how some of our customers are using technology from FLIR Intelligent Transportation Systems.

We are always looking for new application stories and new customer testimonials. If you have an interesting application please contact us. We will be happy to include you in the next edition of this booklet.

Please fill out the following form, scan it and send it to flir@flir.com or fax this form to +32 3 303 56 24

Company :

Name :

Address :

Postal Code :

City :

Country :

Tel :

Application :

Short Description :

To speak to a thermal imaging camera expert, please contact:

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