Hikvision Oil & Gas Industry Solution
Protecting Your Personnel, Production, and Property

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HIKVISION

Solution Overview

In the oil and gas industry, prioritizing safety and environmentally-friendly practices is crucial due to the nature of its volatile operations. As an asset-intensive sector, productivity depends on the reliability of every component. To tackle these challenges, oil and gas managers need intelligent solutions, and that's where Hikvision comes in.

Hikvision's AI-powered solution for the oil & gas industry equips daily operations and workforce with advanced technologies and products, enhancing the entire value chain. These systems safeguard your personnel and critical infrastructure, reduce unexpected downtime, and boost operational efficiency. By implementing a robust solution tailored for the industry, you can cut costs, ensure adherence to best practices, and minimize environmental impact.

Continue reading to discover how Hikvision's solution protects your personnel, production, and property while providing valuable business insights every day.
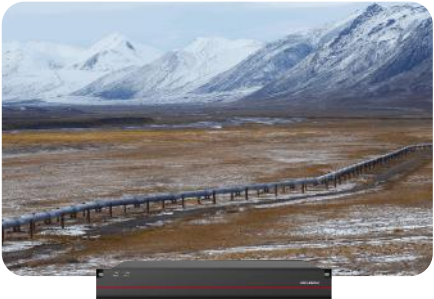
Securing Critical Infrastructure

For large areas that require high-level security protection, Hikvision's oil & gas solution enables continuous monitoring of critical infrastructure. AIoT-enabled multidimensional sensing devices simplify security management by providing clear imaging and timely alerts for abnormal events.

Thermal Cameras

Perimeter protection

Hikvision's solution provides wide-range protection, with timely and accurate alarms triggered even in low-light conditions. This capability helps prevent damage to critical zones, particularly in remote locations. Security personnel can visually verify the nature of incidents remotely and respond effectively.

Hikvision's **Fiber-Optic Vibration Sensing System** utilizes buried optical fibers along pipelines for real-time detection. These fibers cover long distances and accurately identify the types and locations of anomalies. Additionally, they integrate seamlessly with Hikvision's cameras for comprehensive site monitoring.

Fiber-Optic Vibration Sensing System

Access control management

- At facility entrances, the access control system quickly verifies the rights of employees and visitors through biometric recognition. Access records are securely retained within the park.

- For sensitive work areas, metal detectors are implemented to screen personal belongings. Furthermore, the system accurately counts the number of individuals in different areas to ensure a safe working environment.

Face Recognition Terminal

Swing Barrier

Walk-Though Metal Detector

Vehicle management

Entrance & Exit control

Hikvision offers convenient and efficient entrance & exit control for both internal and visitor vehicles.

When a vehicle approaches, **the ANPR camera** automatically identifies the license plate and verifies the identity, allowing it to pass through. Both vehicle and access information are recorded in a centralized platform.

ANPR Camera   Barrier

On-site driving regulations

Effective vehicle regulation and management are critical, especially since many vehicles transport hazardous materials that require special training licenses, specific protocols, and extreme caution. Hikvision's products help transportation companies address these challenges while gaining valuable insights such as:

- Real-time GPS tracking of vehicles, including speed detection with video evidence for thorough post-event analysis
- Enhanced driver protection and assistance with an intelligent ADAS system to reduce accident risks
- Emergency alarm feature for drivers to quickly alert the control center
- Data-driven decision-making supported by diverse operational analysis reports

Interior Mobile Camera | Exterior Mobile Camera | Mobile Recorder | Panic Button | Intercom | DSM Camera | BSD Camera | ADAS Camera

Video Security System Products   **ADAS Products**

Enabling Operational Safety

Hikvision helps keep critical operations up and running using advanced AI, sensing and thermographic technologies. The primary focus of our solution is to ensure health and safety for personnel while addressing the evolving needs of companies to identify, manage, and mitigate both current and hidden safety risks.

Field operation supervision

Field operation supervision plays a critical role in high-risk operations such as maintenance, repairs, and various labor-intensive processes. Workers on-site can use portable devices to record the work processes in real time while the control center verifies adherence to safety procedures through live video streaming. Workers can communicate with the center as needed to receive remote instructions.

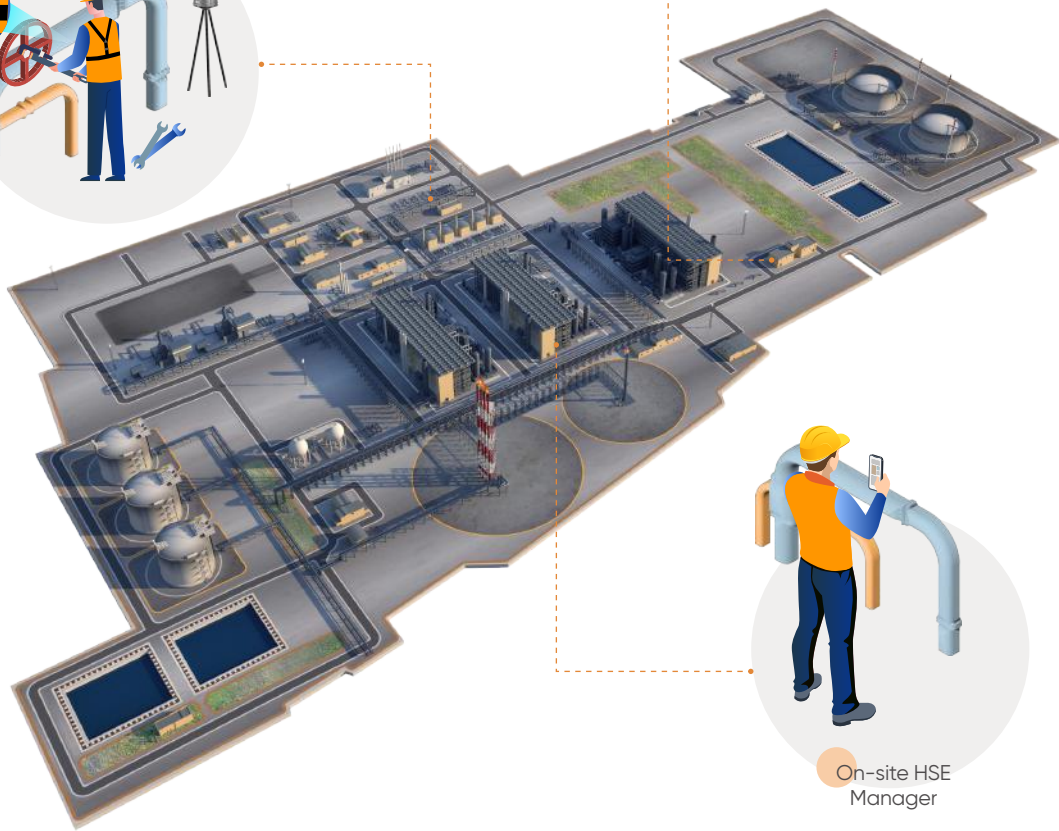Portable PTZ Camera   Helmet Camera   Body-Worn Camera

Central HSE Manager

Control Room

Operation Manager

On-site HSE Manager

Protect personnel with AI-enabled health & safety management

PPE detection

Requirements for Personal Protective Equipment (PPE) – the protective-wear that ensures worker safety – is a must in these industries. But enforcement can be a challenge across the worksite. Remote PPE checks intelligently use video imaging to help managers ensure employees are wearing helmets and other PPE, which could mean the difference between life and death in hazardous environments.

Safe distance management

Safe distance warning alerts notify supervisors when their employees get too close to dangerous or restricted areas, or when someone breaches the HSE rules.

Abnormal activity monitoring

Abnormal activity monitoring detects and responds fast to emergencies and hazardous events that may threaten worker safety, such as falling down, running, unauthorized gathering, and more.
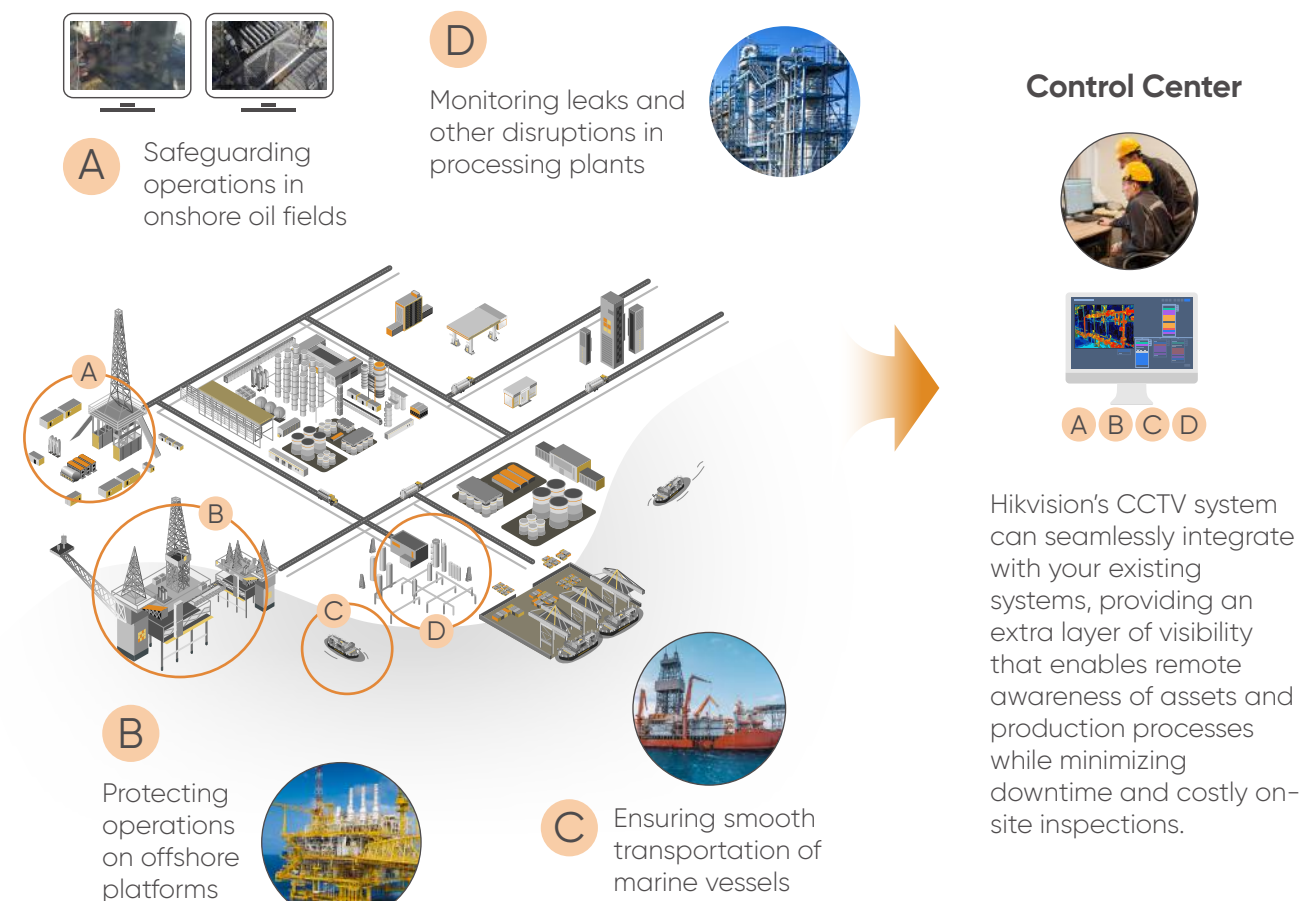
Explosion-Proof Cameras

DeepinMind NVR

Real-time visual verification across key areas

High-value explosion-proof and anti-corrosion cameras are widely used in the oil and gas industry for operational monitoring, even in hazardous environments. Key applications include:

A Safeguarding operations in onshore oil fields

D Monitoring leaks and other disruptions in processing plants

Control Center

Hikvision's CCTV system can seamlessly integrate with your existing systems, providing an extra layer of visibility that enables remote awareness of assets and production processes while minimizing downtime and costly on-site inspections.

B Protecting operations on offshore platforms

C Ensuring smooth transportation of marine vessels

Explosion-Proof Cameras

Hikvision **Explosion-Proof Cameras** are certified to ATEX, IECEX standards and feature a reinforced stainless-steel outer casing with a cylindrical flame-proof joint design to prevent fire and other hazards in extreme cases. Equipped with AI functions, these cameras recognize potentially dangerous practices at job sites, ensuring operational safety.

Remote anomaly detection with thermography

Hikvision's thermography products are ideal for temperature monitoring of critical equipment and facilities. These cameras detect temperature anomalies accurately and raise alarms, allowing for timely responses to risks. They provide crisp and clear thermal imaging, with high accuracy of up to ±2°C or ±2%.
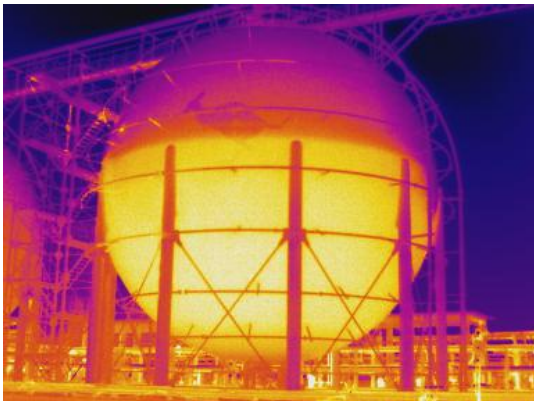
Handheld Thermography Cameras

Thermographic Cube Cameras
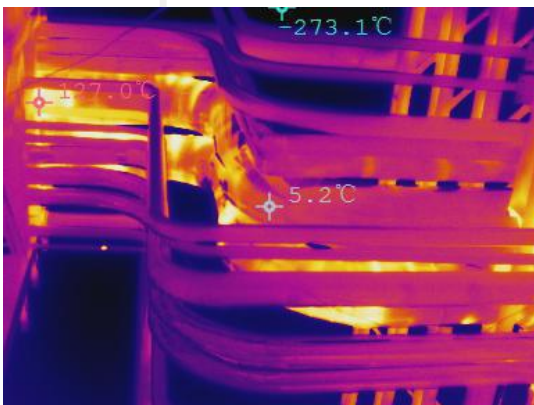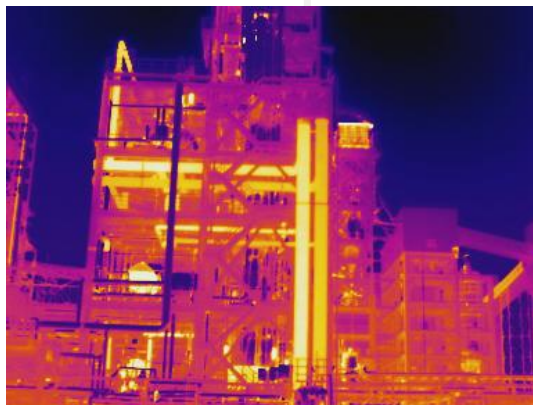
Explosion-Proof Cameras

Temperature monitoring

Thermography products monitors the temperatures of refining processes 24/7, helping to detect corrosion in pipelines, tanks, and other storage equipment before oil or gas leaks occur.

Users can make timely repairs before overheating and reduce damage and downtime. Additionally, liquid level detection measures oil and gas levels from a distance in tank farms and oil tankers, guarding against overflows or leaks.

◄ Liquid level monitoring of oil storage tanks to avoid overflow or leakage

External temperature measurement for refining equipment to prevent potential shell damage ►

◄ Temperature anomalies detection on pipelines to detect potential corrosion

Flare monitoring

Hazardous gases generated from hydrocarbon processing must be disposed of through flaring. Thermal imaging is well-suited for monitoring this process. Continuous temperature readings raise alarms if flames burn hotter or cooler than expected, thus mitigating the risk of explosions and minimizing negative environmental impacts.

Gas leak detection

Pipeline leak detection

The Acoustic Imager captures eddy current acoustic signals to accurately locate leak positions and quickly assess the severity of gas leaks through a visual interface. Handheld devices on-site help pinpoint leakage locations with higher precision.

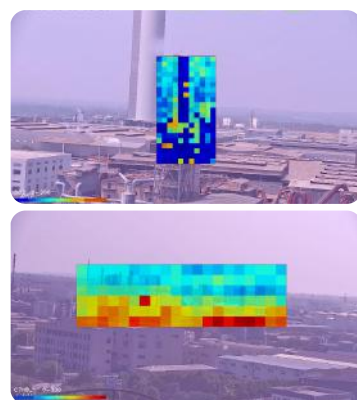Online Acoustic Imager   Handheld Acoustic Imager

Production area gas leakage detection

Components within the production area may leak ethane during operation, posing risks to both the environment and personnel safety. Hikvision's **TDLAS (Tunable Diode Laser Absorption Spectroscopy) Cameras** can detect gas leaks qualitatively and quantitatively, ensuring environmental and personnel safety.

Gas-Cloud-Imaging Cameras support simultaneous detection of multiple hydrocarbon gases and generate visual images to help determine the distribution of leaked gases.

Hyperspectral Fourier Gas-Imaging Cameras detect the types and concentrations of up to 500 different gases, issuing timely warnings for hazardous materials. It enables users to visually identify leakage points and gas concentrations through clear imagery.

TDLAS Camera   Gas-Cloud-Imaging Camera   Hyperspectral Fourier Gas-Imaging Camera

Managing Centrally with Hikvision's Platform

All data and products can be centrally managed in the HikCentral Professional platform. This software platform supports flexible configurations based on on-site conditions and can be expanded to additional sites at any time to meet users' requirements.

HikCentral Professional   Easy to deploy and use   Informative and visualized

Streamlining Remote Inspection

The comprehensive solution digitizes the forms and checklists necessary for operation inspections. Through the HikCentral Professional Platform, you can efficiently manage device allocation and customize inspection plans according to unique operational processes.

Leveraging AIoT products, the solution enhances operational safety and compliance by replacing manual supervision with 24/7 real-time monitoring and AI-powered analytics. Multidimensional inspection reports help optimize inspection schedules and team performance.

📊 Visualizing Data for Better Insights

Hikvision's solution for the oil & gas industry features an inclusive dashboard that presents perceived data in an intuitive, visualized way.

It provides operational teams with:

- A comprehensive view and multidimensional analytics
- Displayed ongoing operations and real-time inspection statuses
- Data indexing to fuel informed decision-making.

The AR Live Interaction integrates video with data, delivering a more immersive experience that improves situational awareness and facilitates prompt emergency responses.
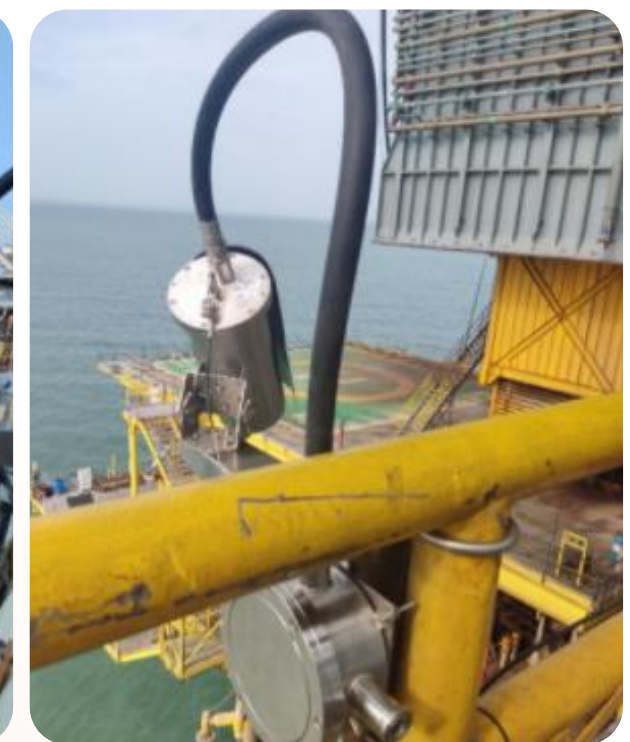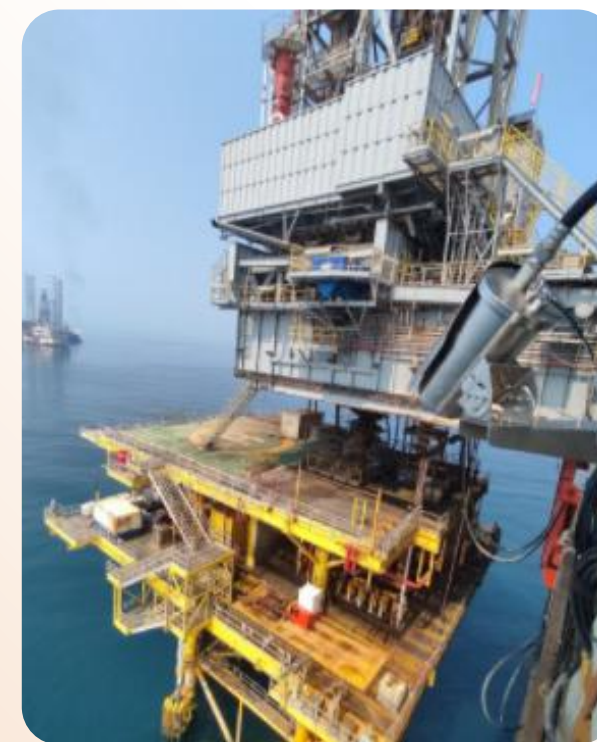

📊 Success Story

An oil platform operator enhances staff health and safety while minimizing security risks with Hikvision.

The challenge

LATINA Construction and Drilling aimed to maximize staff safety and site security on the La Santa Maria oil drilling platform in the Gulf of Mexico. Constructed in 2013 and relatively close to land, this platform is more vulnerable to security breaches and property damage from trespassers. To address these risks and mitigate environmental hazards, the platform required an upgraded security solution.

What we offer

To meet this need, they implemented a Hikvision solution featuring explosion-proof cameras equipped with deep learning algorithms for perimeter protection and fire detection. This solution provides real-time alerts to the security team for swift incident response. Encased in heavy-duty housings, Hikvision explosion-proof cameras help maximize staff health and safety by minimizing the risk of camera-related sparks, thus preventing fires and explosions.

The results

This reliability ensures that LATINA Construction and Drilling continues to benefit from the system for years, despite constant exposure to saltwater. Additionally, the reduced need for repairs and maintenance results in significant cost savings.

🏭 Product Showcase

Explosion-Proof Cameras

Explosion-Proof Bullet
DS-2XE6442F-IZHRS

- ATEX & IECEx certificated
- 316L stainless steel enclosure and anti-corrosion spray treatment
- IP68 water resistant

Explosion-Proof Positioning Camera
DS-2DY7432IXG-XY

- ATEX & IECEx certificated
- 1/1.8" progressive scan CMOS
- Up to 2560 × 1440 @30 fps resolution and 100 m IR distance
- 32x optical zoom, 16x digital zoom

Explosion-Proof PTZ
DS-2DF8432IWG-CXF

- High-quality imaging with 4 MP resolution
- 120 dB true WDR technology
- Up to 100 m IR distance

Sensing Products

TDLAS (Tunable Diode Laser Absorption Spectroscopy) Camera
DS-2XE9440G0-IZHRS/ TDL200/CH4

- Detect methane concentration with long-range capability, high sensitivity and resistance to interference from other gases
- IR distance of up to 200 m

GCI (Gas-Cloud-Imaging) Camera
DS-2XE9440G0-IZHRS/GC

- Employ a smart algorithm to detect gas leakage, upload alarms, and preview gas imaging in pseudo-color
- Capable of detecting over 50 types of hydrocarbon gases
- 316L stainless steel with anti-corrosion spray coating

Hyperspectral Fourier Gas-Imaging Camera
DS-2MA8988G0-GL

- Dual-light lens for visible and infrared light
- Capable of detecting nearly 490 kinds of gases
- Wide detection range of 2 km

Thermal Cameras

Explosion-Proof Thermography Camera
DS-2TD6567T-50H4LX/W

- Temperature exception alarms for fire prevention
- 640 × 512 resolution
- Perimeter protection features, supporting multiple detection rules

Bi-Spectrum Cooled Thermal Sphere PTZ
DS-2TD966A

- Multi-position intelligent recognition and auto-focus technology
- Vessel detection and ship flow detection
- 2 MP low-lux color camera, achieving 24/7 video monitoring

Thermal Positioning PTZ
DS-2TD6267 series

- Temperature exception alarms for fire prevention
- 640 × 512 resolution
- Perimeter protection features, supporting multiple detection rules

DeepinMind NVR

Acoustic Imager
DS-QAAI264G1-P
DS-QAAI264G1-EP

- High accuracy localization and visual display via a HD camera
- Built-in discharge type recognition algorithm

Fiber-Optic Vibration Sensing System
DS-QFV0502 DS-QFV1002
DS-QFV5002

- One device can detect up to 100 km
- Simultaneous positioning and monitoring of multiple vibration points with high accuracy

DeepinMind NVR
iDS-9632NXI-M8/AI

- Up to 32-ch IP cameras can be connected
- Deep learning algorithm identifying abnormal activities