Energy & Utility Solutions for Ensuring
Security & Safety from Bosch Security Systems

Security, Safety, and Communications Products

BOSCH
Invented for life

A Tremendous
Responsibility

How to meet the security challenges of
the energy & utilities sector - with solutions
from Bosch Security Systems

Within the energy & utilities sector critical infrastructure facilities are systems and assets that are essential for a society to function. They include utilities for generating, transmitting, and distributing energy of all kinds. This can include facilities for ensuring the water supply (including wastewater and sewage treatment) and for extracting, refining, and transporting petroleum and petroleum products (including oil fields, refineries, pipelines), and chemical plants.

All of these assets and systems have one thing in common: gaps in their security or safety can seriously threaten public health, the environment, the economy, or even national or global security.

In the case of hazardous, extreme, and toxic environments, it is particularly essential to comply with extremely strict security, safety, and communication standards.

Many security and safety risks are associated with critical infrastructure facilities, including:
- ▶ Sabotage
- ▶ Unauthorized access
- ▶ Illegal entry and theft
- ▶ Malfunctioning of systems

Because ensuring human safety and preventing environmental disasters have absolute priority, the only responsible choice is to take advantage of the best available state-of-the-art, reliable technologies. For dangerous and poisonous environments, this often includes special products such as explosion-protected day/night cameras, infrared illuminators, and long-distance cameras, backed by advanced intrusion detection and access systems. The products offered by Bosch Security Systems are ideal for meeting the security, safety, and communication requirements of critical infrastructure facilities.

Security, Safety, and effective Communications
for the Energy & Utilities sector

The many challenges include:
- ▶ Possible terrorist attacks and vandalism
- ▶ Early detection and handling of fires and explosions
- ▶ Detection of intruders
- ▶ Management of access privileges
- ▶ Dealing with weather conditions and extreme environments

Bosch Products and Solutions

Bosch offers a wide range of products and solutions for effectively managing security, safety, and communications in the energy & utilities sector of all kinds. They enable you to:
- ▶ Protect critical assets and facilities from theft, sabotage, and malicious attacks
- ▶ Efficiently monitor all areas and activities, also in harsh environments
- ▶ Detect potentially dangerous individuals before they can cause any trouble
- ▶ Conduct fast, controlled evacuations
- ▶ Prevent unauthorized persons from entering restricted areas
- ▶ Integrate all safety, security, and communication solutions in a building management system for centrally monitoring and controlling critical infrastructure facilities

For absolute Reliability –
Stay Safe with Bosch Solutions

Power Plant

Petroleum - Offshore

The energy & utilities sector calls for extremely strict security, safety, and communication standards. This picture illustrates various typical applications.

Power Generation and Water Treatment

Petroleum - Refinery

Public address and voice evacuation systems

Fire alarm systems

Intrusion alarm systems

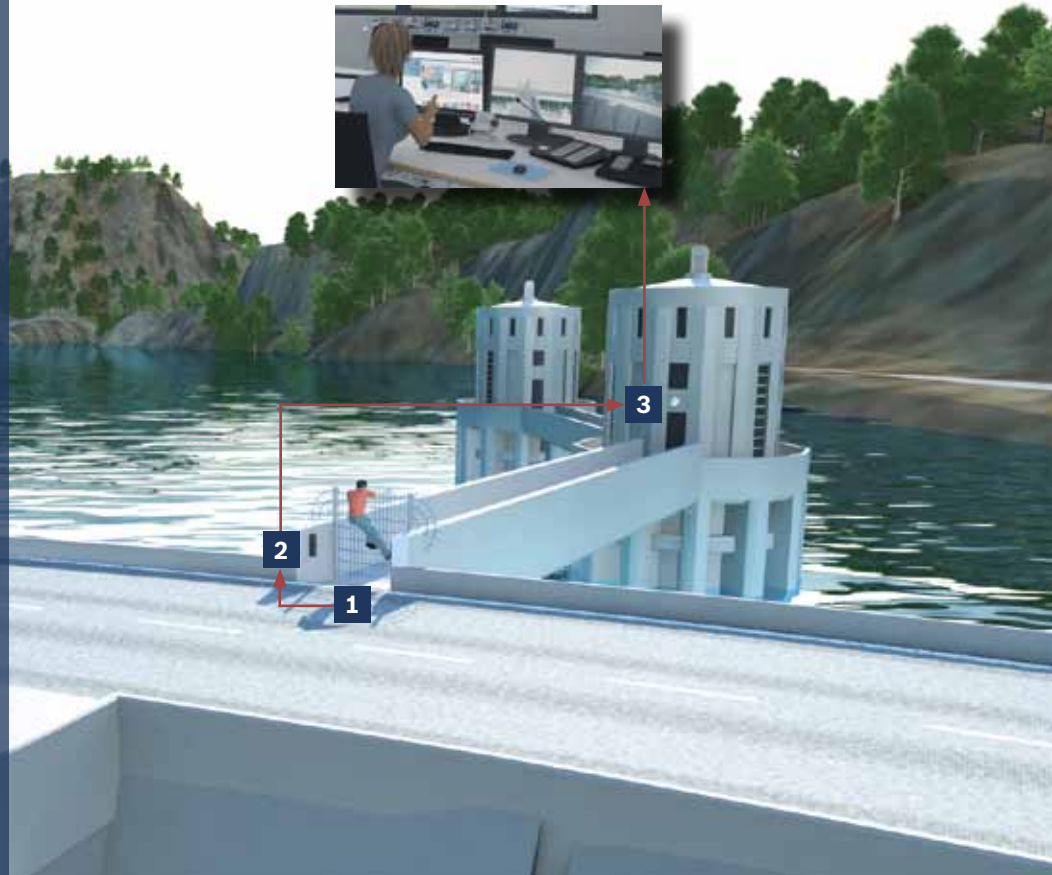IP-based video surveillance systems

Access control systems

Building Management System

Detect **Suspicious Activity**

1. Intruder climbing over a fence
2. Active infrared sensors trigger an alarm in the control room
3. A camera is used to verify the alarm

The Video Management System from Bosch enables complete management of all video surveillance components. High-resolution CCTV cameras (also for harsh conditions) can continuously monitor people moving through and spending time in different areas.

They can also capture persons approaching or attempting to climb over fences at any time of the day or night. Intelligence Video Analysis in the cameras delivers additional benefits. Thermal PTZ cameras detect motion in all weather conditions, thus also helping to protect critical infrastructure facilities.

Quad Beam photoelectric detectors permit even faster, more reliable detection. They are equipped with an environmental discrimination circuit that ensures reliable operation despite dust, fog, rain, or snow, making them ideal for use under difficult conditions.

Keep **Intruders Out**

1. Unauthorized person entering a laboratory
2. A passive infrared detector triggers an alarm
3. A camera automatically zooms in to pinpoint the intruder
4. A screen in the control room shows the exact location
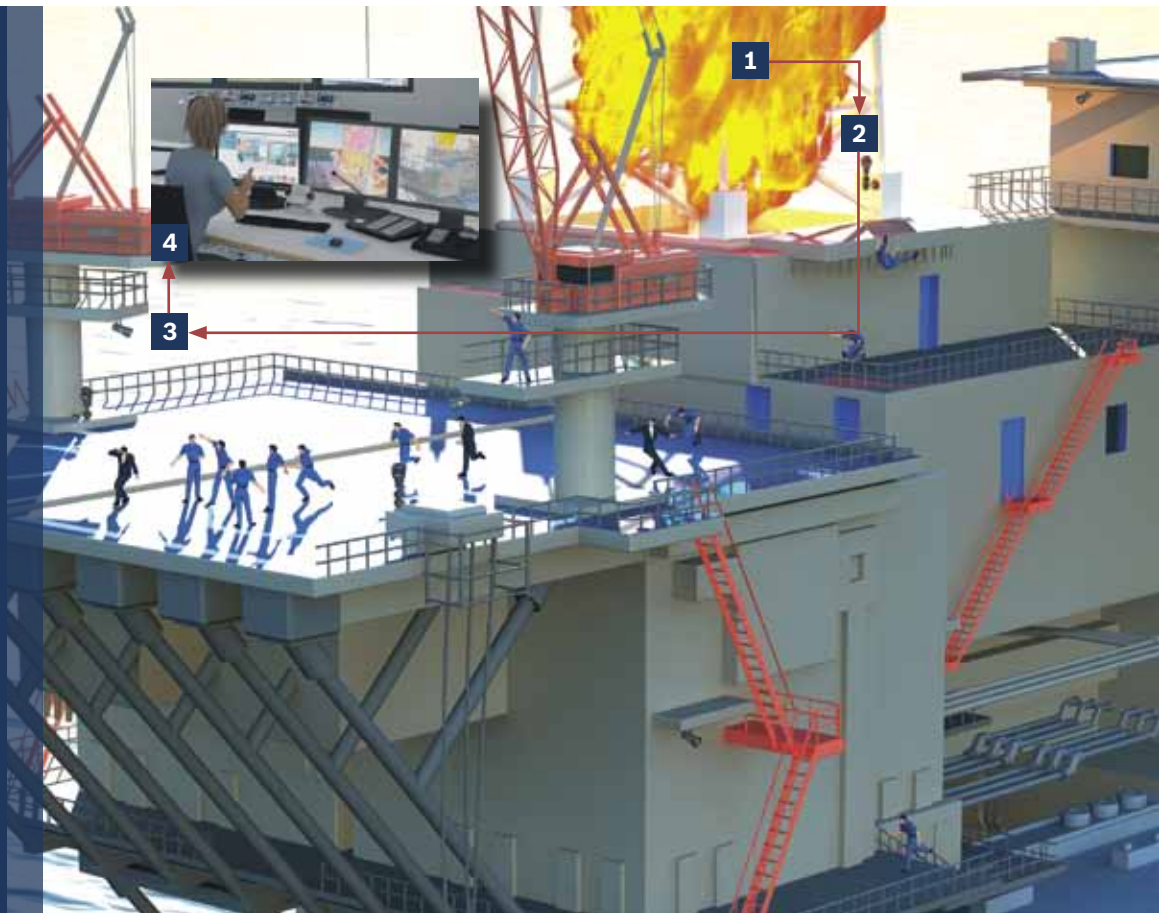5. Security is notified

Intruders or employees illegally entering sensitive areas pose a threat – they could steal hazardous materials or perform dangerous actions.

Bosch can help prevent this as well – with a complete range of intrusion alarm panels and detectors for applications of all kinds. State-of-the-art RFID technology restricts access to critical areas, buildings, and facilities. All unauthorized access attempts are monitored and can be watched using nearby surveillance cameras.

If a detector picks up a possible threat, the Bosch Video Management System comes into play with high-resolution CCTV cameras and Intelligent Video Analysis to verify the alarm and enable subsequent forensic searches for identifying and detaining intruders. Various types of cameras from the large Bosch portfolio can be installed for verifying alarms, and it's easy to change or add cameras to meet changing security requirements.

1. Fire in a high-risk open area
2. Verification with an explosion-proof video camera
3. Notification of employees and visitors via Praesideo voice alarm system with explosion-proof speakers
4. Coordinated evacuation and notification of response teams from the control room

Clamp Down on **Fires and Facilitate Evacuations**

Fires (for instance as a result of an explosion) constitute major threats to potentially volatile facilities. To protect lives and property at critical infrastructure facilities, it is vital to quickly detect, locate, verify, and contain fire events.

Many critical facilities pose special challenges, with their extreme, hazardous, and toxic environments.

Bosch fire panels and detectors are ideal for this and more. They apply multiple intelligent criteria to ensure early, reliable detection – with high immunity to false alarms – and fast responses. A large number of detectors can be connected and networked to cover multiple locations and structures.

The panels automatically notify on-site firefighters or the local fire department, in addition to interfacing with sprinkler, ventilation, and public address systems as well as the Building Integration System (BIS) from Bosch to coordinate the evacuation of people.

Bosch offers explosion-protected products such as cameras and horn loudspeakers that are specially designed and approved for safe use in hazardous atmospheres like those found at oil, gas, and chemical processing sites and petrochemical refineries. They are more reliable under extreme conditions, last longer, and have a considerably reduced risk of failure or declining performance.

Guard against **Terrorist Attacks**

Terrorism and vandalism in the energy & utilities sector can have dangerous consequences. To prevent this from happening, special security measures should be taken to keep potential threats well away from buildings, pipelines, etc.

Bosch cameras with Intelligent Video Analysis can guard against all of these risks by establishing a "virtual perimeter fence" that, if crossed, alerts a security operator. Cameras can then be used to check the situation at any time of the day or night and enable appropriate action. They can be installed in even the harshest of environments.

Defending critical facilities from terrorism focuses on dealing with anonymous bomb threats and concealed explosive devices. The ability to manage these safety and security risks is crucial. Bosch Advanced Intelligent Video Analysis (IVA) enables early detection of suspicious behavior. Tracking cameras can help verify or disprove alarms, alerting the security operator as appropriate. A forensic search function permits fast retrieval of relevant video sequences.
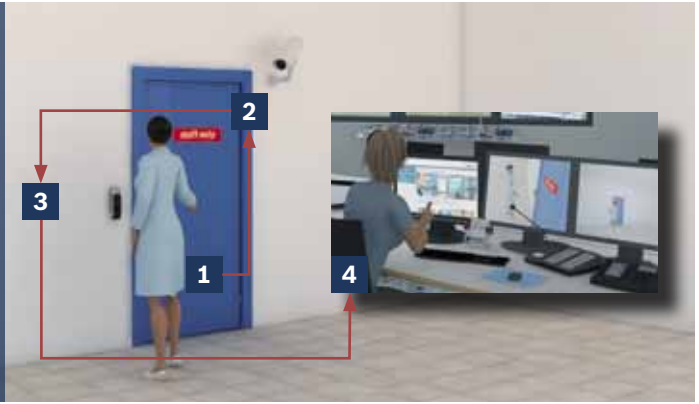
1. Intruder approaching a pipeline crosses a virtual perimeter fence
2. An alarm is triggered in the control station
3. Cameras automatically track the intruder to analyze the alarm

1. Person wishing to enter a staff-only building
2. Verification with a video camera
3. Authorization based on image database
4. Entry remotely permitted from the control room via the BIS

Make Sure **only Authorized Persons get in**

An IP-based access control system from Bosch is ideal for preventing unauthorized individuals from entering restricted areas such as security control rooms or laboratories. It supports a large range of readers as well as biometric solutions to meet strict security requirements. Together with video surveillance, this makes it possible to capture and record all access events. Violations automatically trigger an alarm so immediate action can be taken to deal with the situation.

1. Truck approaching gate
2. The driver swipes his card through a reader and enters a code
3. Verification via video camera
4. After a REG camera reads the vehicle's license plate, the barrier opens
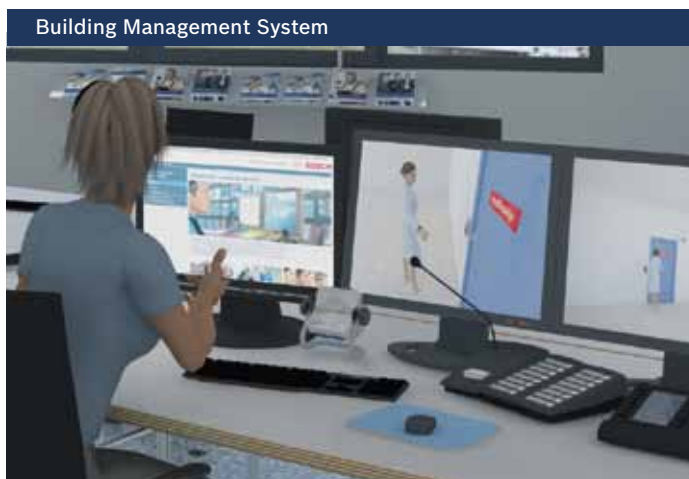
Maximize Security **from the Start**

Bosch Access Control Systems guarantee reliable access management both inside and outside and permit easy integration of third-party equipment. All this can be combined with video surveillance to boost security, which is especially important in critical facilities.

REG license plate cameras ensure reliable capture of plate number, even under the most challenging conditions. They are protected by a weatherproof casing and capture high-contrast plate images under all possible ambient lighting conditions, from total darkness to direct glare from sunlight and vehicle headlights.
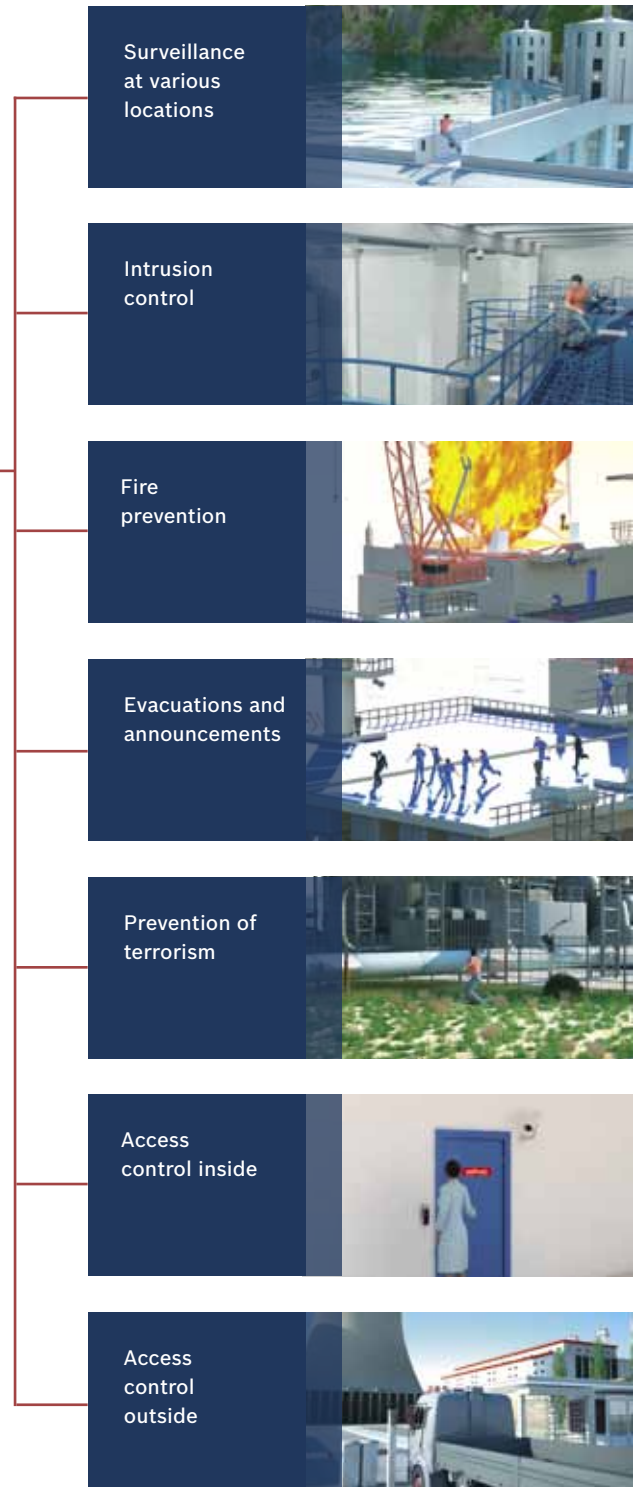
Building Integration System

Complete Integration of Security, Safety, Communication, and Building Automation

Building Management System

With all of the safety, security, communication, and building automation systems that can be installed in a critical facility, it is a challenge to efficiently manage and coordinate them all.

The Building Integration System (BIS) from Bosch provides a single Web-based cockpit for monitoring all security, safety, and building management systems. This includes alarm management, fast alarm pinpointing via location maps, and follow-up procedures. It also seamlessly integrates fire and intrusion alarms, as well as evacuation, access control, CCTV, and building automation systems. Use of the BIS lets a single operator monitor and control all security systems, in addition to enabling faster responses to emergencies and greater overall effectiveness.

Surveillance at various locations

Intrusion control

Fire prevention

Evacuations and announcements

Prevention of terrorism

Access control inside

Access control outside

Selected **Reference Projects**

El Chocón Hydroelectric Complex, Argentina

This hydroelectric plant in Argentina's Comahue region was able to get unexpected events under control with a Bosch solution.

The main objective was to improve visualization of critical parts of the reservoir and dam. To achieve this, a Divar MR control center and complete remote CCTV management solution with mobile Dome cameras was implemented, including live viewing and control, playback, and remote alarm notification. The new system lets staff monitor the water level, detect intruders, and communicate with the security force, all without leaving the control room.

Las Flores Thermoelectric Plant in Barranquilla, Colombia

The 400 MW Las Flores plant implemented a new security system from Bosch to safeguard the power supply for a new industrial complex.

The new system includes dome IP cameras to monitor perimeters and production processes. An access control system restricts access to critical areas, supported by video verification and an intrusion system. A Videos management system uses Intelligent Video Analysis for localization and proactive surveillance. A Building Integration System enables video verification of authorized individuals and automatic positioning of mobile cameras, among other things.

Teplarna Kosice a.s. Heating Plant in Kosice, Slovakia

This major heating plant needed to protect the perimeter of its three-kilometer-long fenced complex and monitor all important systems.

Teplarna Kosice a.s. is one of Slovakia's largest producers of heat (in the form of hot water and steam). To tighten security, it installed a Bosch Video Management System, which is a unique tool for managing digital images, audio, and data from analog and IP camera systems. The perimeter and entrances are secured by 54 cameras, including three rotating AutoDome VG4 cameras. The plant itself is monitored by 26 video cameras. IVMD 1.0 software analyzes images to automatically assess movements to identify possible intruders.

Erie Water Works, Pennsylvania

The Erie Water Works eliminated vandalism and inventory losses by upgrading to an integrated security system from Bosch.

The Erie Water Works supplies drinking water to the city of Erie and surrounding towns. To meet increasing security requirements, it installed various Bosch systems: the Access Engine for access control, the Video Engine for surveillance, and the Security Engine for intrusion. The Bosch Building Integration System provides an integrated view of all three components. At the main distribution center and at the largest water treatment plant, cameras record video on DiBos DVRs.

The Bosch Security Systems
Commitment

Bosch Security Systems is an innovative, customer-focused global manufacturer and supplier of security, safety, and communication products and solutions. We are committed to remaining the supplier of choice by consistently offering top-quality products and solutions backed by superb service.

A Consistently High Standard of Quality Worldwide
All Bosch manufacturing facilities uphold the same high standards of quality to deliver first-class, internationally acknowledged product performance. This is supported by unflagging efforts to continually improve all products and processes.

Bosch designs its products so you can count on them to work as intended and are free to focus on your core business.

Leaders in Innovation
Bosch invests heavily in research and development, channeling a double-digit percentage of its sales revenues into these activities. Over the years, this commitment has consistently generated reliable, award-winning technologies and products to benefit customers.

Customers as Partners
You reap advantages from the global network of qualified Bosch dealers, who help you with planning, project management, or installation, whatever your needs may be. Bosch runs partner programs in Europe, the Middle East, Africa, the Western Hemisphere, and Asia/Pacific.

The global Bosch sales organization is always near you, no matter where you are located. Count on high-quality service worldwide and keep up to speed with training from the Bosch Security Academy (BSA).

Local Support
The worldwide presence of Bosch Security Systems makes sure you have access to high-quality business and technical services. You can rely on Bosch and its local partners to quickly and flexibly support you in dealing with your issues.

Products for Highly Precise Security,
also under Extreme Conditions

Reliable security from Bosch

Bosch offers a large portfolio of products that are consistently designed to deliver a high level of security under even the most challenging conditions. They are built to withstand and dependably operate in extreme temperatures, low-light and no-light environments, corrosive and volatile atmospheres, and areas where products could be physically attacked.

For peace of mind in connection with virtually any application, you can take advantage of everything from explosion-proofed cameras and loudspeakers across accurate licence plate cameras to highly secure biometric readers.

Everything is from a single supplier and therefore harmonizes perfectly. You can assemble an ideally tailored solution to meet even your most exacting requirements.

A Tradition of Quality and Innovation

For over 100 years, the Bosch name has stood for quality and reliability. Bosch is the global supplier of choice for innovative technology, backed by the highest standards for service and support.

Bosch Security Systems proudly offers a wide range of security, safety, communications and sound solutions that are relied upon every day in applications around the world, from government facilities and public venues to businesses, schools and homes.