

# FIRE SAFETY and SECURITY



Design, project legalization and installation of:

- FIRE SAFETY SYSTEMS
- TECHNICAL SECURITY SYSTEMS



**SYNCHRON-S Ltd.**

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# Why we are here?

**We are here because  
we KNOW HOW  
to protect you from FIRE  
and how to keep your  
property SAFE**

## **FACTS from our 20 years professional record:**

- ✓ **More than 2 500 installed fire safety systems.**
- ✓ **More than 1 800 security systems.**
- ✓ **More than 300 detections of real fire ignitions and prevention of further damages of property and human lives.**



# Our company at a glance



**SYNCHRON-S is specialized in preparing and realization of projects in the sphere of Fire Safety and Security.**

The company has great experience in complete engineering of Fire Safety Systems and Security Systems in **large sites with high level of fire hazard and high security requirements**. The company offers high quality and effective decision, based on:

- Contemporary technology
- High quality equipment
- Great professional experience





Currently **SYNCHRON-S** has built, equipped and put into **regular operation more than 2 500 installations** in civil, industrial and special purpose sites:

- Power plants, Heavy and Light industry plants
- Special purpose sites (military and governmental)
- Public and Commercial sites, Warehouses and Office Buildings
- Telecommunication centres
- Banks and Insurance institutions
- Universities, Hotels, Hospitals.

**The company has realized one of the biggest projects in the country. Among them are Thermal Power Plant Bobov dol, Thermal Power Plant Maritza East, Assarel Medet, Sofia Airport, Ministry of Defence, Megapark Sofia, etc.**





**The main objective of the company is to deliver high quality effective solutions that satisfy the client's needs.**

The full spectrum of activities that the company provides for each project is a guarantee for high quality and efficiency of the systems, and in particular:

- Risk assessment
- Project design and legalization
- Delivery and installation of the equipment
- Start up of the systems
- Professional service support
- Technical prophylactic tests on a regular base
- Training of the personnel responsible for the building safety.





Additional guarantee for the high quality of the systems is the strict application of the requirements of Bulgarian legislation, the national and international standards as well as the existing engineering practices.

### **The company has the following certificates:**

- Operating quality management system in compliance with the requirements of international standard **ISO 9001:2008**
- **VdS certificate** for installation and maintenance of sprinkler systems
- **Certificate from Ministry of Defence** in compliance with the requirements of the standard BDS EN 50133
- **NATO supplier** certificate with codification code 001

# ABOUT THE COMPANY





### **SYNCHRON-S is a member and founder of the following branch and business organizations:**

- Founder of the Bulgarian Fire and Emergency Safety Association and a member of the Board of Directors.
- Consultant in creating the national fire safety standards relevant to fire extinguishing installations
- Member of the National Alarm Systems Association
- Member of the International Fire Protection Association
- Member of the Bulgarian Industrial Association
- Member of the Bulgarian Chamber of Commerce and Industry

# HOW do we implement our projects?



- ✓ through  
**CONTEMPORARY TECHNOLOGY**
- ✓ using  
**HIGH QUALITY EQUIPMENT**
- ✓ having  
**INNOVATIVE APPROACH**
- ✓ designing  
**TAILOR MADE TECHNICAL SOLUTION**
- ✓ having  
**RESPONSIBLE EMPLOYEES**
- ✓ incorporating  
**EXPERIENCE OF THE LEADING  
WORLD COMPANIES**

**WE REPRESENT MORE THAN 15 YEARS:**

The SIEMENS logo in a bold, teal, sans-serif font.

In the process of planning and implementation of the systems, we rely on the latest technologies, rich experience and reliable equipment of world leading producers. We represent more than 15 years the following global technology providers:

- **SIEMENS**
- **TYCO**
- **LPG**

The equipment is approved by recognized testing laboratories and certifying institutions such as VdS, LPCB, CNPP, UL, ULC, NFPA and meets European and international standards.

The tyco logo in white lowercase letters on a blue background, with the text 'Fire Suppression & Building Products' in smaller white text below it.



The company's activity is structured in the following two directions:

1. Design, project legalization and installation of **FIRE SAFETY SYSTEMS**
2. Design, installation and integration of **SECURITY SYSTEMS**

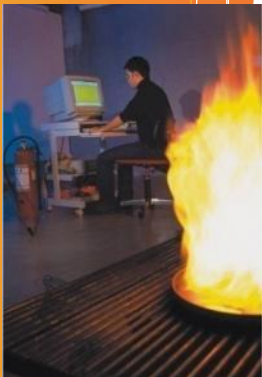


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# Fire Safety





## FIRE SAFETY SYSTEMS

- Sprinkler extinguishing systems
- Water mist extinguishing systems
- Powder and foam extinguishing systems
- Gas extinguishing systems - Ar, N, FE-13, FM-200
- Fire prevention O<sub>2</sub> reduction systems
- Fire detection and alarm systems



## SPRINKLER SYSTEMS



Using water as a main extinguishing agent, the conventional sprinkler systems are **economical, reliable and safe solution for fire control and fire suppression.**

### ◆ Technological advantages:

- The automatic sprinkler systems react immediately in the initial stage of fire.
- They suppress a fire by cooling effect reducing the temperature in the burning area and taking away the heat of the burning process.
- They are suitable for occupied spaces, allowing safe escape of people.





**The essential elements for successful operation and long lifetime of the installations are:**

◆ **Professional projects:**

Before installing of each sprinkler system, it is essential to analyze the building use and building contents to determine the level of fire hazard and set the most important parameters with compliance with the **standard EN 12845**.

◆ **Reliable equipment and quality installation:**

To achieve the necessary design parameters we use high reliable equipment certified by **VdS, LPCB, CNPP, UL, ULC**. It is essential to select proper sprinkler heads according to their fast operation, mounting characteristics, area of operation and water flow. The quality installation and professional preventive maintenance services are essential elements for successful operation of the systems.





## ◆ Applications:

- Class A fires (combustible materials, smouldering fires, etc.)
- Industrial sites
- Warehouses
- Commercial and administrative buildings
- Offices
- Underground garages



## MEGAPARK SOFIA - Mall and offices



Design, Installation and Maintenance of :

- Automatic Sprinkler Extinguishing System of the territory of entire complex, including office area of 80 000 m<sup>2</sup> situated in 16 floors.





### WATER MIST EXTINGUISHING



The systems are based on the new high efficient method of fire extinguishing with water mist, that combines the advantages and eliminates disadvantages of conventional fire extinguishing methods with water .



**SYNCHRON-S is the only certified company in Bulgaria building fire fighting systems with water mist.** The company realized the systems thanks to high technology equipment and experience of a leading European company. SYNCHRON-S has completed such system in the largest and leading Bulgarian mining company Assarel-Medet. The system is installed in the factory for copper extraction working with 500 tone kerosene.



### ◆ Technological advantages:

The water mist is a specific way for using of water as an extinguishing agent. Water mist systems extinguish fire by the force of the water. The systems operate with special spray heads with micronozzles at pressures of 140 to 200 bars, producing droplets of very small diameter at very high velocity.



When the system operates a fast cooling effect is observed, because water spray in droplets of micrometric size absorbs the heat of the burning process 1600 times faster than traditional sprinkler systems. This guarantees:

- 1. Fast and efficient extinguishing of fire**
- 2. No damages for the equipment**
- 3. Fast recovery of the working process**







## ◆ Advantages over traditional sprinkler installations:

- ✓ Requires 20 times less water
- ✓ Requires less installation space for the pipe network
- ✓ Extinguishing is faster – absorbs heat 1600 times faster
- ✓ Minimal damage after the discharge





## ◆ **Wide range of applications:**

Suitable for fast and efficient extinguishing of class A, B and C fires:

- ✓ Cable collectors/tunnels
- ✓ Rotor turbines
- ✓ Transformers, generators
- ✓ Computer centers
- ✓ Production areas
- ✓ Machinery space
- ✓ Warehouses
- ✓ Archives, libraries



## ASSAREL MEDET - Mining company



Design, Installation and Maintenance of :

- Fire Extinguishing System with WATER MIST in factory for cooper extraction working with kerosene.



## EXTINGUISHING WITH FOAM



**The systems are used for local fire fighting over large surface of burning liquids.**

### ◆ Technological advantages:

Foam is made up of water, foam concentrate and air. Fire fighting foam is resistant to fire, thanks to the foam concentrate, which contain chemicals like fluorine. Foam solution extinguishes fire by several effects:

- The foam creates a continuous layer, which prevents oxygen from reaching the liquid and smothers the fire
- Due to the high water content in the foam, the fuel surface rapidly begins to cool thus suppresses the fire
- Fluorine terminates the combustion chain reaction thus preventing any risk for further combustion.



### ◆ Advantages:

The foam extinguishing systems are **suitable for fire fighting of Class B fires (flammable liquids)** in special hazards areas such as:

- ✓ Tanks with flammable liquids
- ✓ Warehouses with combustible lubricating materials(oil)
- ✓ Diesel aggregates, etc.



## STOMANA INDUSRTY - Steel manufacturing company



Design, Installation and Maintenance of:

- Fire Extinguishing System with WATER
- Fire Extinguishing System with FOAM
- Fire Extinguishing System with GAS



## EXTINGUISHING WITH GAS

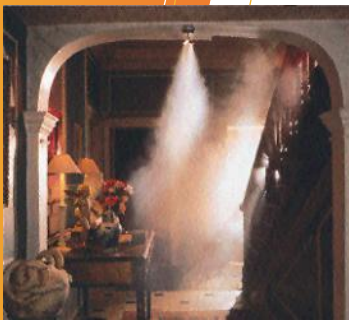


The fire extinguishing systems with gas are exceptionally effective. They suppress fire in its early stage in seconds. The systems are suitable for enclosed areas, where location and suppression of the fire must be fast, clean and efficient. The extinguishing agents are Nitrogen, Argon, FE-13 and FM-200.



### ◆ Technological advantages:

- Fast and safe suppression of the fire in seconds
- Efficient fire extinguishment with no risk of reignition
- The extinguishing observes in oxygen concentration which is safe for people







## ◆ Applications:

Completely solve the problem of extinguishing in industrial conditions. They are suitable for protection of:

- ✓ Electrical equipment
- ✓ Data centers
- ✓ Sensitive and expensive electronic equipment
- ✓ Computer and telecommunication equipment
- ✓ Software and data files - archives
- ✓ Sophisticated medical devices
- ✓ Machine rooms, turbines
- ✓ Gas and oil processing industries
- ✓ Electric power stations
- ✓ Storage areas, etc.

## BOBOL DOL - Thermal Power Plant



Design, Installation and Maintenance of:

- Fire Extinguishing System with INERT GAS

## MARITZA EAST - Thermal Power Plant



Design, Installation and Maintenance of:

- Fire Extinguishing System with INERT GAS
- Deluge Fire Extinguishing System



## FIRE PREVENTION



Fire prevention is the ultimate goal in the fire protection. All current methods of fire protection rely on the fact that the fire must have already started. The new system offers **ACTIVE PREVENTION OF FIRE HAPPENING**.

### ◆ Technological advantages:

The functionality of the system is based on controlled reduction of the oxygen levels in enclosed areas by adding nitrogen to the air. The oxygen is reduced and held at a precise level in which most combustibles do not inflame and to **open a fire is impossible**. Room sensors report back to the control system and allow the oxygen level to be maintained at the desired level, by regulating the nitrogen supply. Rooms remain accessible to personnel, so there is no reduction in functionality of the area. People can enter the area of risk without any side effects.





## ◆ Advantages and applications:

- ✓ Requires less installation area for the equipment
- ✓ The Nitrogen is produced by separation from the air by means of electricity
- ✓ There is no need of reserve of extinguishing agent
- ✓ Do not require any installation area for bottles
- ✓ Provides continuous fire protection
- ✓ There is no risk of business process interruption or loss of property caused by the fire
- ✓ Operates with own energy source
- ✓ The system is the most effective way for protection of large spaces of 2 000 m<sup>3</sup> and more.
- ✓ Suitable for protection of sites with high fire protection requirements, where the fire would be cause loss of unique property, that could not be recovery (data files, documents, IT centers and telecommunication networks, archives).





## FIRE DETECTION



Fire detection is a main element in the process of fire prevention. The systems detect fire or the effect of fire by locating at least one of the components of the burning – smoke, flame, heat or radiation (infrared, ultraviolet).

### ◆ Technological advantages:

- High reliable fire alarm solutions. The **equipment by SIEMENS**, which is used in the systems **meets the European standard EN54**
- **Simple planning process**, thanks to the uniform hardware concept of the control panels, that allows the system to be integrated into existing IT network structure.



- **Compact and stable** thanks to the intelligent C-NET technology for communication of all devices - fire detectors, floor repeater terminals, sounders, I/O modules
- **Fast and reliable** detection with no risk of false alarm, thanks to the multi-sensor detectors for early fire detection – optical, heat, thermo-differential
- **Long detectors life** thanks to detectors high stability against humidity, dirt and dust; they are not affected by mobile phones, fluorescent lighting or other sources of interference
- **Transmission of alarms and visualizations without interruption** thanks to the integrated short-circuit isolator
- **Remote operation** over LAN or WAN and control over the system from any location
- **Integrating with other safety-related subsystems** such as access control, intrusion detection and video surveillance supported by the international standard BACnet.





- **Reliable solution for industrial application and sites with high level of fire hazard**, thanks to the broad range of special detectors:
  - **Linear smoke detector** - ideal for areas with limited access such as high warehouses or atria, large halls, etc.
  - **Flame detection** - for areas containing highly flammable liquids and materials, such as flammable stores, areas with halogen lamps, bright sunlight or welding, etc.
  - **EX detectors** - for protection of areas subject to explosion hazards such as oil refineries, production plants or battery rooms
  - **Aspirating smoke detection** - for areas that require very high sensitivity such as computer suites or for areas that have limited accessibility or a complex structure such as high automated storage facilities.

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**Security**



### SECURITY SYSTEMS:

- Access control systems
- Technical security systems
- Video surveillance systems
- Time attendance systems

Depending on customer needs, the subsystems can be used **independently or to be integrated in complete security solution supports full integration of access control, intruder detection and video surveillance functions.**



## ACCESS CONTROL



Access Control Systems are suitable for wide range of applications – from small to **very large sites for access control of unlimited number of people** (large administrative buildings, government and finance institutions, industrial areas, air terminals, malls, hotel complex, etc.).

- ◆ **The system executes a large number of functions:**
  - Keeps information for access control rights of the people with identification cards
  - Records all passing on controlling point with possibility to archiving by date and time
  - Allows definition of access level, individual settings by zones and time schedules, etc.



## TECHNICAL SECURITY



The intrusion detection systems protect people and property against robbery, attacks or sabotage.

### ◆ Technological advantages:

- They are designed according to the **European security standard EN 50131 with equipment by SIEMENS**;
- They meet the **Grade 4 class C High Risk specifications** of the standard and also meet the requirements CE, VdS, RoHS, WEEE;
- The systems use complete range of internal and external intrusion detectors for low to high risk applications - Passive Infra Red (PIR), mirror optical, dual technology detectors, using combination of PIR/microwave, PIR/optical or PIR/ultrasonic technology, shock, break glass and beam detectors, 360° ceiling mount detectors.



- Provides reliable **detection with no false alarm**;
- **Ensures reliable recognition of intruders** thanks to sophisticated digital signal processing and dual detection technology;
- Ensures **constant very large range of operation** and full coverage of entire monitoring area;
- **Identify human presence** and ignore external disturbance such as small or large animals, draughts or heating ensuring accurate alarm and reliability;
- **Resistance to tampering**, thanks to the innovative anti-block function;
- **Selectable monitoring zones** and moving direction identification;
- **Reliable perimeter intruder detection** in harsh outdoor environments with changing conditions;
- Support wireless and IP technology for **remote monitoring and real-time alarm verification**.





## VIDEO SURVEILLANCE



**Video Surveillance is a main element of modern security systems. Video Surveillance Systems are an extremely valuable and economical means of improving the security of people, buildings and property.**

### ◆ **Technological advantages:**

- The systems use **modern digital recording technologies for video surveillance by SIEMENS**, based on network video servers for building of large systems for real time video control;
- **Optimised recording mode for different situations**, thanks to the possibilities of compression and control of disk storage capacity;
- **High quality digital images** from multiple cameras 24 hours a day;



- The systems use **full range of powerful cameras** - colour and monochrome, indoor and outdoor, day-night, PTZ head cameras, monofocal and varifocal, stationary or high-speed dome cameras, etc.;
- **Ensure DVD quality pictures and the most detailed information** even in monitoring of large areas, thanks to the horizontal resolution of up to 580 lines and up to 26x optical zoom and automatic adjustment of the focus distance;
- **Real time monitoring** and review of records of past event;
- Fast searching of **required records** by data and time, event, camera or group of cameras;
- **Keep the overview of the entire monitored area** thanks to the new integrated „site plan” functionality;
- **Remote monitoring** of live images.



## ◆ Applications:

All spheres of security:

- ✓ Outdoor surveillance of the entire territory of the site
- ✓ Indoor surveillance of all zones and access control points
- ✓ Video motion detection with object tracking



### ◆ Energy plants:

- BOBOV DOL - Thermal Power Plant
- MARITZA EAST I - Thermal Power Plant
- MARITZA EAST II - Thermal Power Plant
- MARITZA EAST III - Thermal Power Plant

### ◆ Special purpose sites:

- MINISTRY OF DEFENSE - 4 projects
- NATIONAL INVESTIGATION SERVICE - Sofia
- SPECIALIZED INVESTIGATION SERVICE - Rousse
- INVESTIGATION ARREST BUILDING - 5 projects
- NATIONAL SECURITY SERVICE
- PSYCHOLOGY INSTITUTE OF MINISTRY OF INTERNAL AFFAIRS
- REGIONAL POLICE DEPARTMENT, Asenovgrad
- CIAA , MINISTRY OF INTERNAL AFFAIRS, Sofia
- RCCC, MINISTRY OF INTERNAL AFFAIRS





### ◆ Public and trade sites, office buildings:

- SOFIA AIRPORT - Terminal 1
- SOFIA AIRPORT - Terminal 2
- MEGAPARK - Mall and offices, Sofia
- HERMES PARK - Mall and offices, Sofia
- CARREFOUR - Hypermarket, 5 projects

### ◆ Government institutions:

#### MINISTRY OF ENERGY

- NATIONAL ELECTRICAL COMPANY - Varna
- NATIONAL ELECTRICAL COMPANY - Pleven
- NATIONAL ELECTRICAL COMPANY - Plovdiv
- NATIONAL ELECTRICAL COMPANY - Miziya
- NATIONAL ELECTRICAL COMPANY -  
Enterprise „Dam-lakes and Cascades”





### ◆ Factories and plants

- STOMANA INDUSTRY, Pernik
- ASSAREL MEDET, Panagyurishte
- UMICORE MED, Pirdop
- TITAN - ZLATNA PANEGA CIMENT AD, Zlatna Panega
- SHISHEDJAM - Glass factory, Targovishte
- SOLVEY SODI - Chemical factory, Devnia
- AGROPOLIHIM, Devnya
- BIOVET, Peshtera
- ACTAVIS, Sofia
- SOPHARMA AD, Sofia
- DANONE SERDIKA S.A., Sofia
- NESTLE SOFIA AD, Sofia
- KRAFT FOODS AD, Svoge
- TANDEM, Sofia



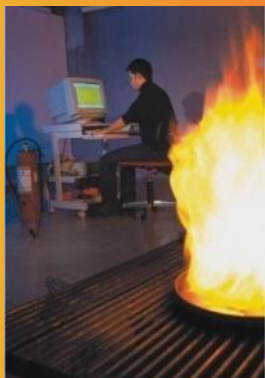




- IDEAL STANDART, Sevlievo
- DEMAX - Printing facilities, Sofia
- ROTOPRESS – Printing facilities, Sofia
- 24 HOURS and 168 HOURS - Printing facilities, Sofia
- PRINTING HOUSE DRUZHBA, Sofia
- STIMEX - Corrugated carton and packages factory, Sofia
- GRAFOBAL - Paper and cardboard factory, Svoje
- MIROLIO BULGARIA, Elin Pelin
- Sofia Metropolitan, Sofia



# Thank you for your attention!



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