Wireless Fire System for Heritage Sites
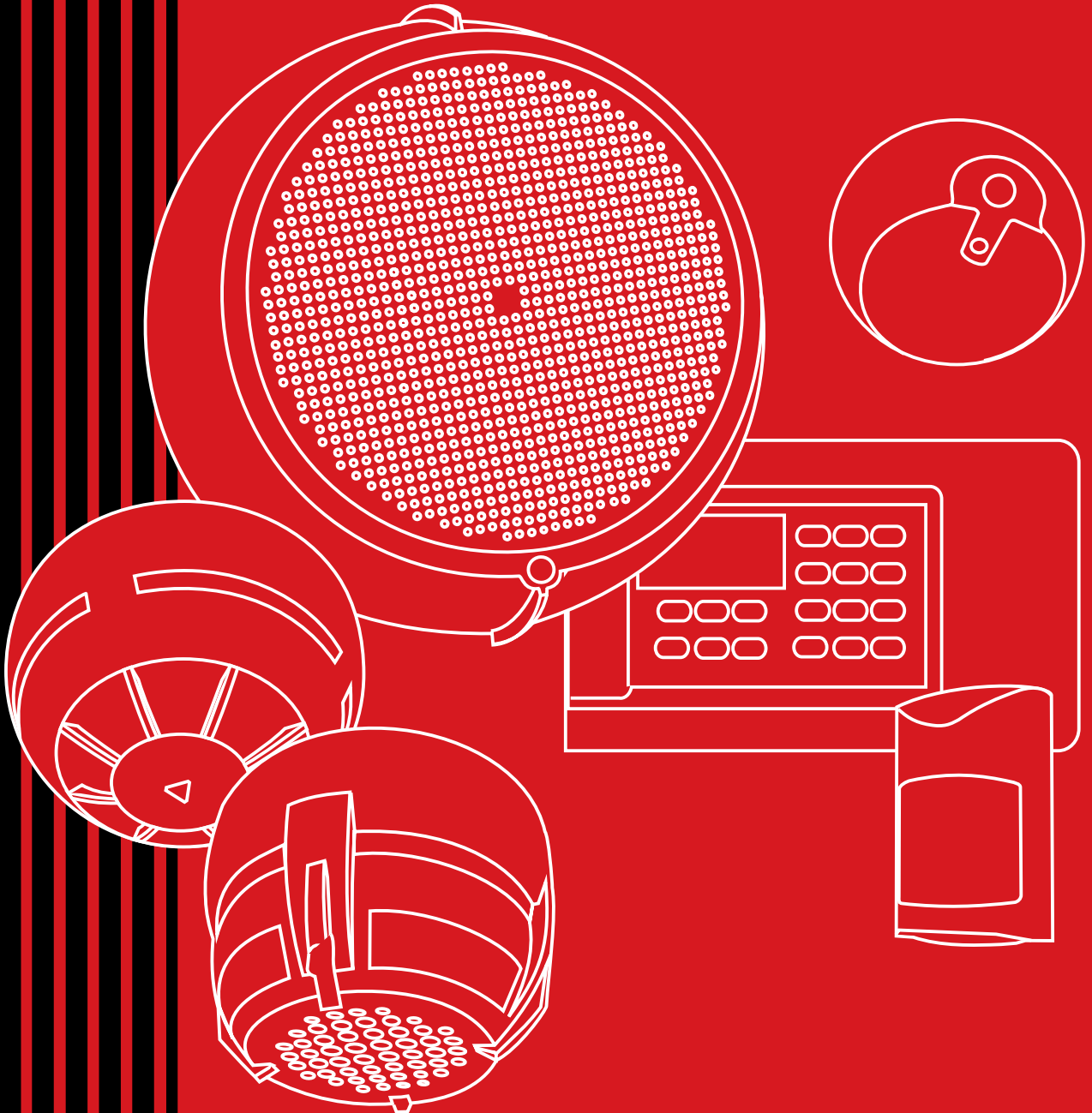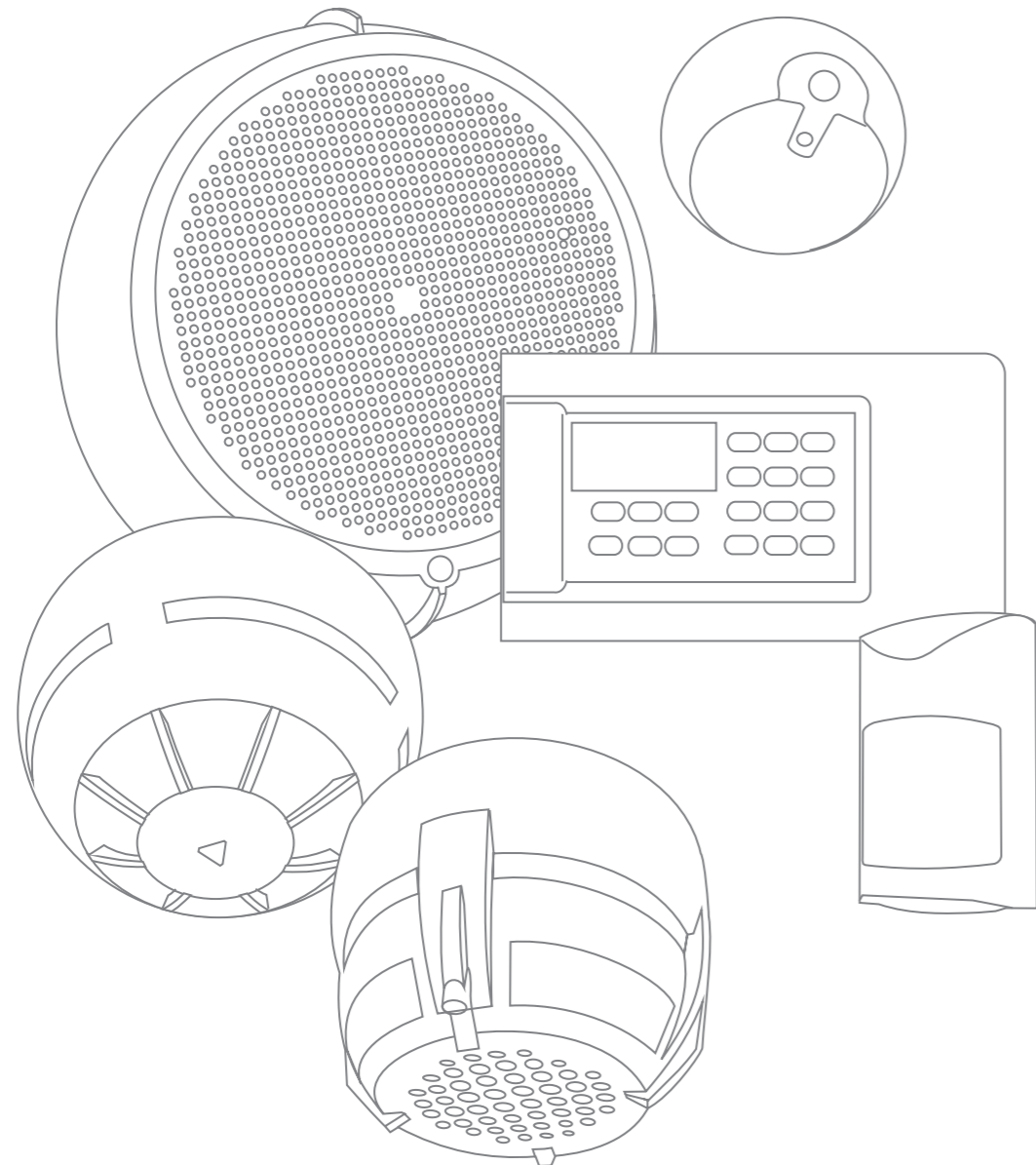

ARGUSSPECTRUM

World's Leading Manufacturer

Wireless Fire System for Heritage Sites

Argus Spectrum is one of the world's leading manufacturers specializing in the development and production of innovative wireless and wired fire detection and security systems. The company was founded in the city of St. Petersburg, Russia in 1993 by two leading scientists working in the field of experimental radio physics and electronics. Our products have a proven record of performance, quality, and reliability with more than 200,000 systems installed worldwide.

Certification
Argus Spectrum wireless fire solution complies with the fire regulations of 83 countries including the Russian Federation, EU, the UK, India, Dubai and Australia.

Research and Development
A continuous program of research and development is led by a team of 50 highly qualified engineers delivering a comprehensive range of products to our global partners. Argus Spectrum has been recognized and presented with 2 prestigious awards from the Government of the Russian Federation in the field of science and technology.

Production
We operate strict quality management systems in accordance with ISO 9001. We have been recognized by and awarded the Toyota Bronze Medal for our Production Management System. The factory covers an area of 8,000 square meters and houses four lines of surface mounting with automatic optical inspection systems, featuring robots from major global manufacturers. The factory's test laboratory is well-equipped with a smoke channel testing equipment, conforming to both Russian and international standards.

about the company

Streletz-PRO is a brand of wireless equipment including:

- Fire detection
- Security alarm
- Sound, voice, and visual alarm
- Temperature sensors and leak detection
- Fire suppression
- Remote access and monitoring

Streletz-PRO includes all the necessary equipment for a comprehensive fire protection setup. It covers fire detection, notification, fire suppression and much more. Our wireless system has no limitations in this aspect and can match the capabilities of wired systems.

Traditional wireless fire alarms usually have a limited range of use due to poor connection strength and small network coverage. But that's not the case with Streletz-PRO: a communication range of 1200 meters in free air ensures that even the thickest walls can be penetrated by wireless signals. The translator supports up to 126 expanders, which allows you to build a very robust and dense network. The communication protocol is designed in such a way that up to 2000 wireless devices can work in the same building. All this means that the Streletz-PRO system is suitable for almost all kinds of projects.
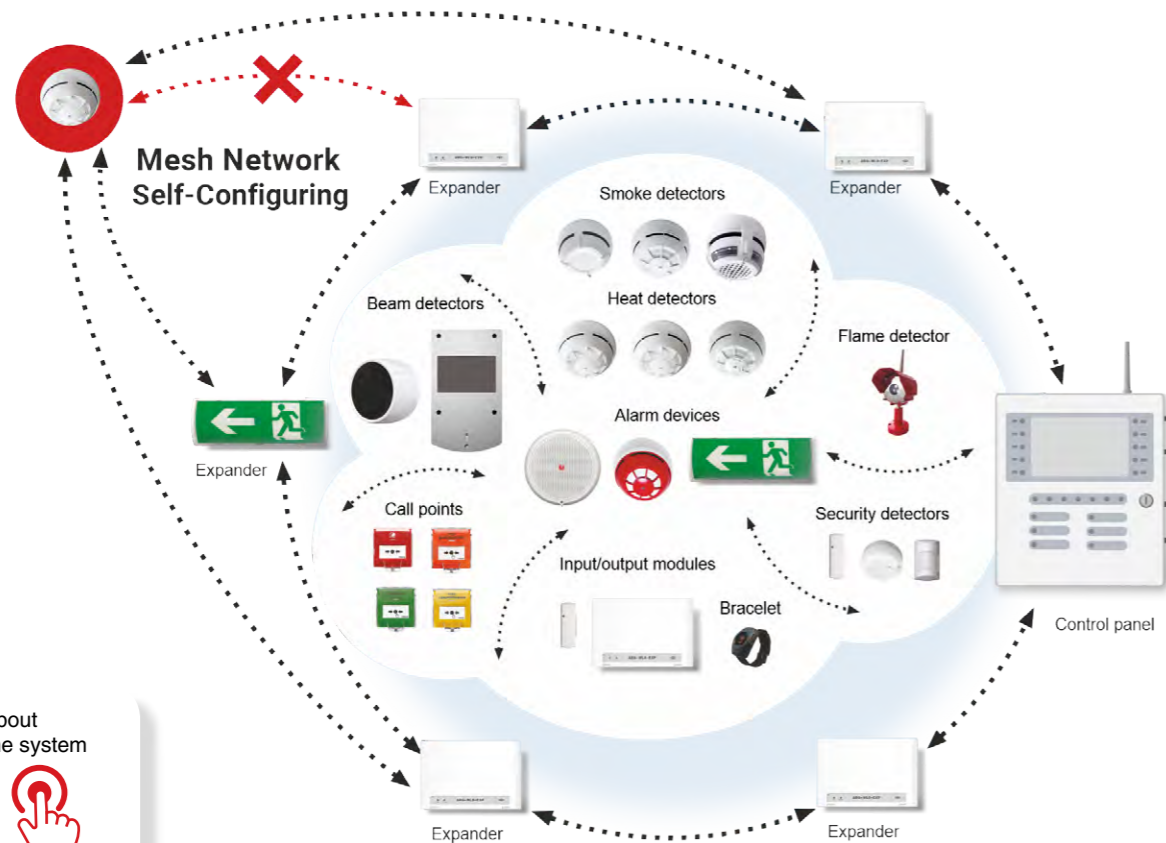
Hybrid solution

The fact that our main specialty is wireless, doesn't mean that our wired solution is compromised in any way. In fact, it is just as good as other intelligent fire systems from popular manufacturers.

Our addressable product line includes smoke, heat, multi-criteria and beam detectors, manual call points, sounders and VAD's, output and input modules. All devices come equipped with an integrated short circuit isolator. Addressable detectors by Argus Spectrum use a modification of a popular system protocol and compatible with different types of control panels.
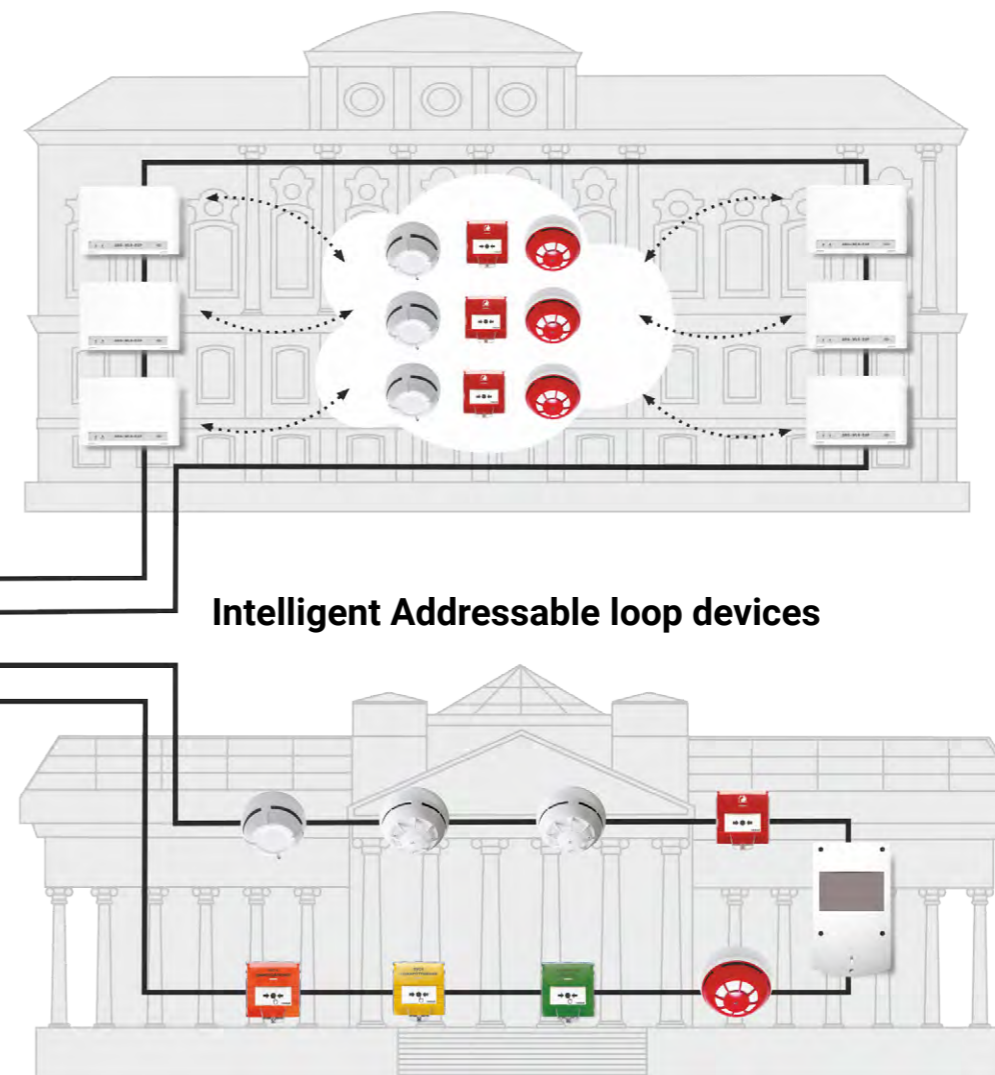
System architecture

Wireless card + PSU powered expanders

2 orthogonal antennas

6 frequency channels

127 expanders

1920 devices

868 MHz

Mesh Network Self-Configuring

Expander

Smoke detectors

Expander

Beam detectors

Heat detectors

Flame detector

Alarm devices

Expander

Call points

Security detectors

Input/output modules

Bracelet

Control panel

Expander

Expander

about the system

Translator + loop powered expanders

Wireless Intelligent

- Self-Configuring Mesh Network
- 10 years of battery life
- 1920 wireless devices
- 3 second alarm activation delay

Intelligent Addressable loop devices

Wired Intelligent

- Integrated short circuit isolators
- 240 devices in the loop
- Loop length up to 4 km
- Reliable data exchange

Streletz-PRO advanced features

Mesh network

10 - year battery life

1 200 m - communication range

Wide operating temperature range

1 920 devices system capacity

3 - second activation delay

Cryptographic protection

Changing settings wirelessly

High level of noise immunity

Cloud service

Mesh network

Self-configuring mesh network technology in Streletz-PRO is a new and unique level of reliability:
- each device automatically chooses its parent expander;
- expanders automatically form a network for delivering information to the main control panel.

Self-configuring mesh network technology provides:
- high level of reliability;
- automatically adapting to changing operating conditions: all devices automatically choose

a parent expanderdepending on the quality of connection;
- extended information system capacity allowing complex issues to be managed and solved;
- a simple design and commissioning process;
The system will automatically decide which device connects to which expander and build a wireless network.
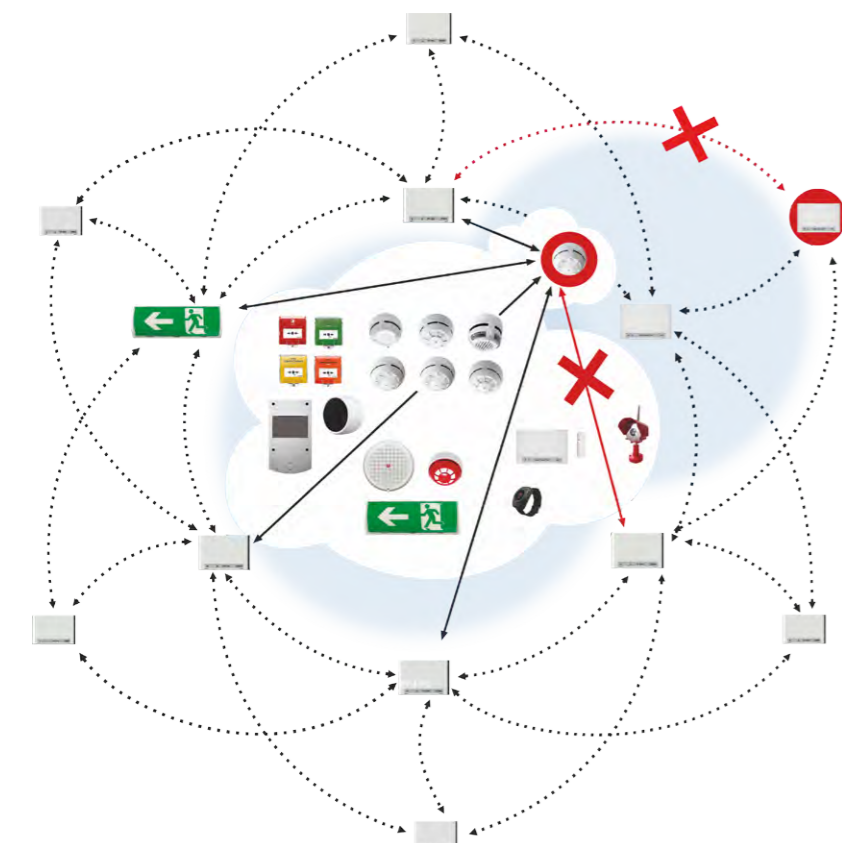
Advantages for installers:
- simplified design and planning process;
- faster commissioning process;
- solutions to complicated problems and challenges.

Automatic reconfiguration of communication routes

Unavailable communication route

Shortest redundant route

designing the Streletz-PRO network

10-year battery life
• Every device in the system monitors the state of its primary and backup battery and the Streletz-PRO software is designed to provide the user efficient and planned battery replacement.
• Signal delivery confirmation and automatic adjustments to transmission power.
• Software monitors the state of the batteries, which allows planning battery replacement ahead of time.

batteries in Streletz-PRO

1200 m – communication range
The maximum communication range in open space between expanders is 2,000 meters, between an expander and a child device is 1,200 meters. This is significantly higher than the communication range of most wireless fire detection systems on the market.

Wide operating temperature range
Streletz-PRO operates within a temperature range of -30 to +55 degrees. The system implements the principle of automatic frequency adjustment when the devices are in different temperature conditions.

1920 devices
System capacity:
• 1920 wireless devices;
• 127 expanders;
• 512 zones
Up to 1920 wireless devices can be installed in a single radio network without mutual interference. Such a number of devices in Streletz-PRO allows to solve a more complex class of tasks and equip various types of objects.

3-second activation delay
All alarm notification devices activate in under 3 seconds. This ensures quick and safe evacuation from the building in the event of an emergency. The activation is synchronized.

Cryptographic protection
Streletz-PRO implements dynamic information encoding and dynamic two-way authentication mechanism to eliminate the possibility of tampering with the radio system

Changing settings wirelessly
All parameters of the system devices are programmable wirelessly.

High level of noise immunity
One of the most important parameters of any system is its level of resistance to external interference and electromagnetic interference. Cable lines often serve as antennas for electromagnetic interference, and the resulting voltage in the conductors leads to false alarms.
The inducing voltage is proportional to the length of the conductor (in wired systems it is the cable length, in wireless systems it is the antenna length), which means that wireless detectors are virtually immune to the effects of inducing voltage.

interference in Streletz-PRO

Cloud service
When discussing Argus Spectrum technologies, particular attention should be given to the Streletz-Cloud cloud service The service provides access to installed systems for the servicing organization and other authorized personnel.
The Streletz-Cloud allows control and monitoring of the system from anywhere in the world with Internet access via WEB-client, a mobile application (for iOS and Android) and desktop software.

Cloud service

Fast and easy installation without decommissioning or impacting the interior of the facility

When dealing with wired systems, the facility often needs to shut down for installation. Extensive drilling and storage of construction material on the floor are common, posing risks like unintended damage to wall coverings which is unacceptable for cultural heritage sites.In many heritage sites, walls and ceilings are of cultural value and should not be disturbed. The impact on the interior cannot be avoided when installing cable lines.At the same time, when installing the Streletz-PRO system, cable lines are not required and there is no impact on the interior of the facility.

Heritage sites don't need to be closed during the transition from the old fire alarm system to Streletz-PRO. Such closures are unnecessary since the installation is swift and causes minimal disturbance.
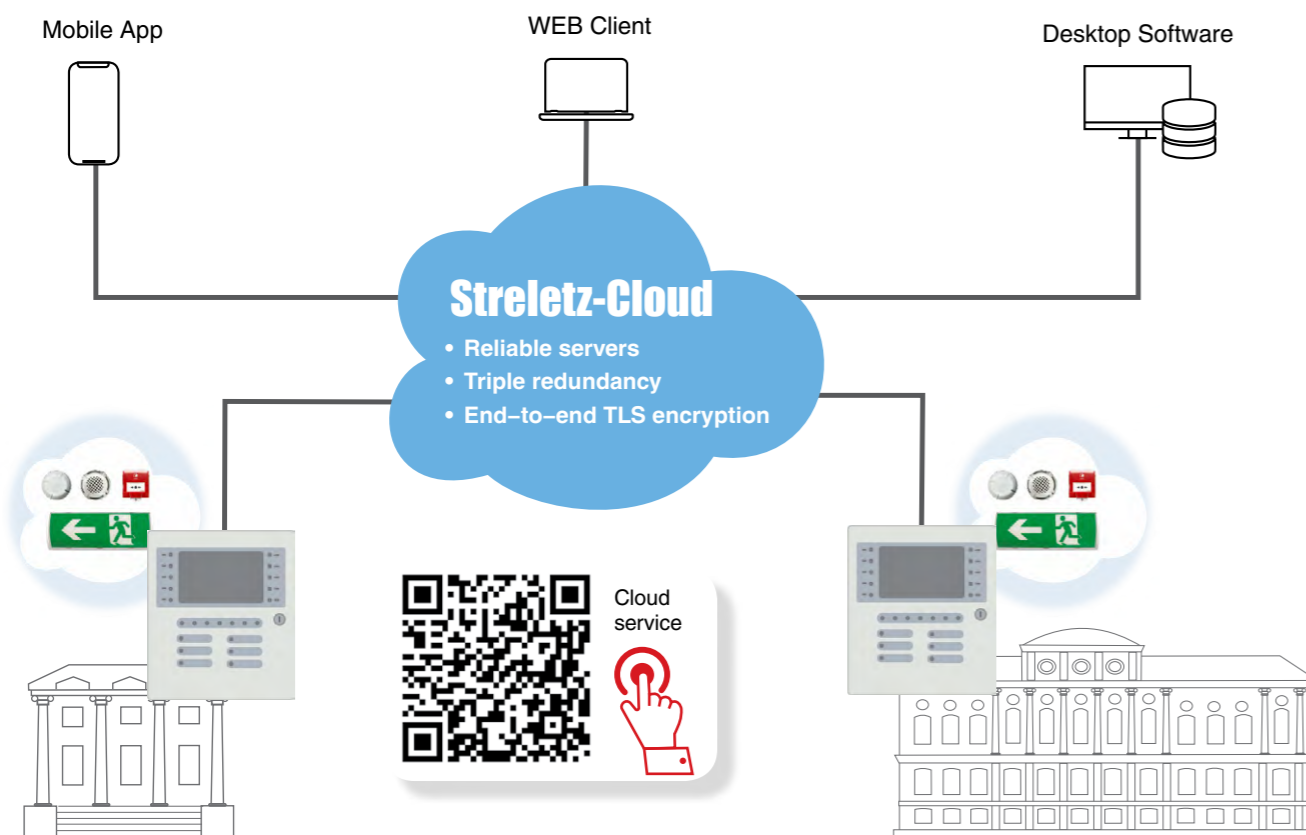
Cloud service for real-time monitoring and notification of events

Argus Spectrum doesn't just make fire detectors, we also offer a unique and groundbreaking technology called Streletz-Cloud. It is a cloud service that provides remote access to the fire system for fire alarm engineers.

You can use Streletz-Cloud through a web browser, mobile app, or software, and your data remains encrypted and secure on servers. You can even remotely track things like smoke, temperature, dust levels, and more.

The fire alarm system's real-time status is just a smartphone away for those in charge of safety. This cloud-based approach assures steady supervision and quick action, keeping the fire alarm system dependable and effective.

Mobile App

WEB Client

Desktop Software

Streletz-Cloud
- **Reliable servers**
- **Triple redundancy**
- **End–to–end TLS encryption**

Cloud service

Wireless directional evacuation

The wireless fire system Streletz-PRO includes wireless detectors ARG-WL8-OV that have no analogues in the world, which not only detect smoke, but also indicate the path to a safe exit for evacuating the building. In case of fire voice alarm speakers / detectors ARG-WL8-OV activate a synchronised voice message, alternately flash the high intensity LED's and generate white noise to clearly indicate a directional path to the safest evacuation route. This method of managing evacuation is especially relevant for cultural heritage sites with large numbers of people, including foreign citizens among the visitors.

White noise and strobe lights indicate safe exit route

EXIT

17 16 15 14 13 12 11 10 8
7
19 9
23 5
20 21 22 2 3 4 6

directional evacuation
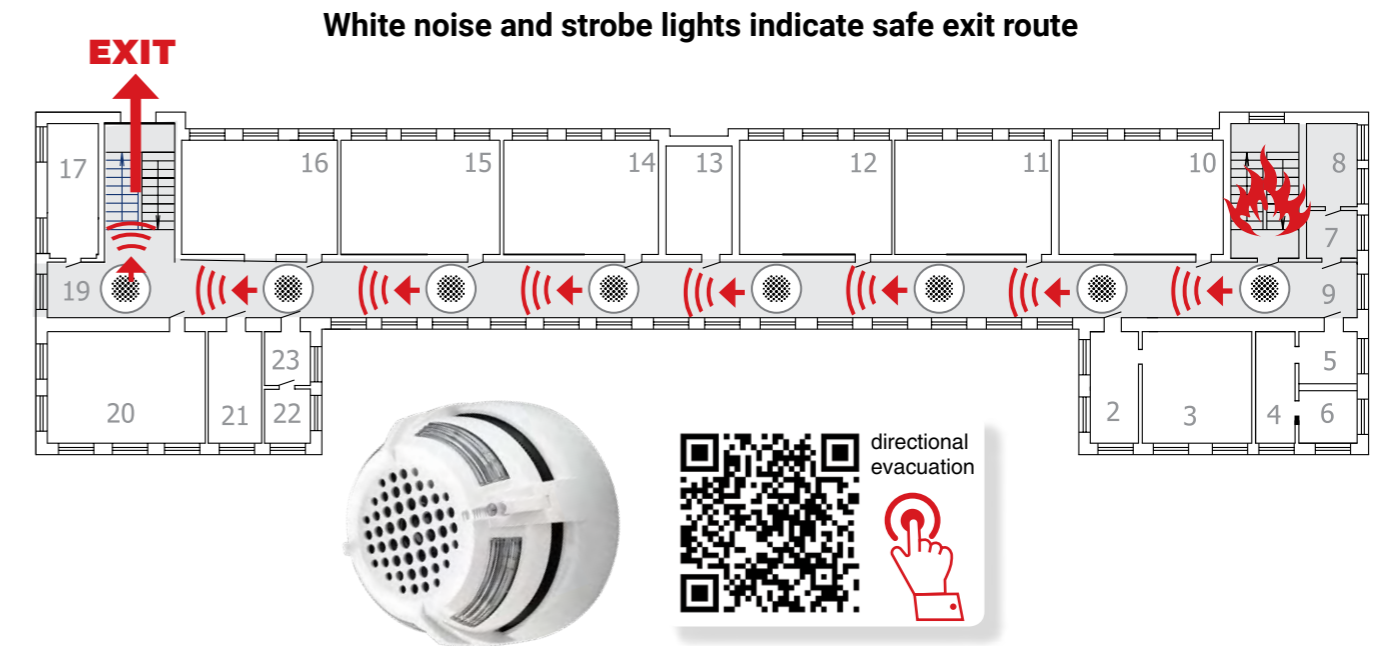
Wireless security sensors and guard bracelets

The wireless fire system Streletz-PRO includes personal bracelets for guards and small wireless inertial sensors for detecting movement of objects. In the event of even slight movement of a protected object, the detector sends an alarm signal to the guards' bracelets, indicating the room number and exhibit name, thereby significantly reducing response time in emergency situations.

inertial sensor

guard's bracelet

10.11.2023
Alarm!
Hall 3, exhibit16

Projects in Russia

International projects

Projects in Russia: 1 — The Pushkin State Museum of Fine Arts, Moscow; 2 — The State Museum of Oriental Art, Moscow; 3 — The main cathedral of the Russian Armed Forces and gallery «Memory Road», Moscow region; 4 — The Philarmonia, St.Petersburg; 5 — Church of the Resurrection of Christ on the Blood, St.Petersburg; 6 — Naval Cathedral in Kronstadt, St.Petersburg; 7 — Elisseeff Emporium, St.Petersburg; 8 — Hermitage, St.Petersburg; 9 — Mikhailovsky Theatre, St.Petersburg; 10 — Tretyakov Art Gallery, Moscow, 11 — Arkhangelskoye Estate Museum, Moscow region.

International projects: 12 — The Queen's residence in Scotland (Belmoral Castle), UK; 13 — Opéra Royal de Wallonie, Belgium; 14 — The Hungarian Academy of Sciences, Budapest, Hungary; 15 — Rattenberg School, Austria ; 16 — Eton University, UK; 17 — London Library, UK; 18 — Edinburgh Palace, UK; 19 — Cambridge university, UK; 20 — Library of University of London, UK; 21 — Adam Smith Theatre, UK; 22 — Old City Hall in Oxford, UK.

The Pushkin State Museum of Fine Arts (Moscow)

- **Project size: 1,000 devices**
- **Market sector: Culture, leisure**
- **System type: Wireless security system**

Project description

The Pushkin State Museum of Fine Arts is a museum complex that currently houses one of the largest art collections in the world, spanning from Ancient Egypt and Greece to modern times. The museum's holdings contain around 700,000 artworks from different epochs, with the jewel of the collection being French art from the XIX – XX centuries, including one of the most famous collections of Impressionist and Post-Impressionist paintings in the world.

The Argus Spectrum wireless security system for museum valuables is installed in the Main Museum Building and the Gallery of European and American Art. Sensors are attached to the exhibits, and in case of any movement of the protected object, an alarm signal is transmitted wirelessly to the monitoring center as well as to the bracelets of the guards and museum keepers, indicating the hall and exhibit numbers. The small size of the sensors allows for protection of exhibits of different shapes and sizes, including small objects. More than 1,000 wireless sensors work in one system.

Reasons for wireless use

- Minimal interference with the interior of the premises, a matter of particular significance for buildings designated as cultural heritage sites.
- Quick and easy installation without decommissioning and messy work, protection of temporary exhibitions in a concise span of time, along with the flexibility to rapidly adapt the system to varying exhibition formats.
- Protection against tampering and false alarms.
- Economic efficiency: no fire-resistant cable lines and reduced installation work.
- Minimal operating costs: remote monitoring of values allows maintenance to be planned in advance.

The State Museum of Oriental Art (Moscow)

- **Project size: 1,500 devices**
- **Market sector: Culture, leisure**
- **System type: Wireless fire alarm system, wireless security system**

Project description

The State Museum of Oriental Art is one of the world's largest cultural institutions dedicated to the preservation, research, and exhibition of Oriental art. It is situated in the heart of Moscow, housed in the historic Lunins' House, a 19th-century private residence designed by the renowned architect Domenico Gilardi.

The Museum's permanent collection features galleries showcasing Chinese, Japanese, Indian, Korean art; Southeast Asia and Vietnam; The Caucasus and Middle Asia, including a profound collection of fine art; Iranian art and countries of Central Asia. The Museum also boasts a remarkable assortment of works by the world-renowned painter Nicholas Roerich. Additionally, the Museum houses a diverse archaeological collection, which includes applied art from the Northern regions of Russia.

In 2021, during the restoration process, the Streletz wireless system was selected for both fire protection and exhibit security. A comprehensive range of devices allows to solve different tasks. Proven wireless technology enables design and installation in a short time frame while maintaining high reliability of the system

Reasons for wireless use

- Comprehensive range of devices, including miniature sensors designed to protect valuable exhibits.
- Proven and reliable mesh-technology.
- Quick design, easy installation without decommissioning and disruptive construction work.
- Economic efficiency: no fire-resistant cable lines and reduced installation work.

The main cathedral of the Russian Armed Forces and gallery «Memory Road» (Moscow region)

- **Project size: 9,000 devices**
- **Market sector: Culture, leisure**
- **System type Wireless fire alarm system, wireless security system**

Project description

The unique church ensemble was built in 2020 in honor of the 75th anniversary of the end of the Second World War. The height of the church together with the cross is 96 meters, making it the third tallest Orthodox church in the world. The Road of Remembrance Museum built on the site is a 1,418-meter-long gallery. The gallery features rare exhibits and trophies. The multimedia exhibition contains some 33 million photographs of participants in the Second World War.

Fire safety of the whole complex, as well as protection of museum exhibits is ensured by the wireless system Streletz. For the first time in the world, a unique security system has been implemented, which simultaneously ensures compliance with fire regulations on unlocking doors in case of fire and at the same time guarantees the safety of all exhibits, reliably protecting them from theft. The essence of the solution is the use of personal security bracelets and wireless detectors with a vibration-sensitive sensor, which are attached to each exhibit. In case of a slight movement of the protected object, the detector sends an alarm signal to the guards' bracelets, indicating the room number and the name of the exhibit, which significantly reduces the time for the guards to respond to an emergency situation.

Reasons for wireless use

- Availability of dynamic evacuation system, which in case of fire indicates the direction to the safest evacuation route.
- An opportunity to harmonies the sensors with the decoration of the temple, the wireless fire sensors were hand-painted by artists.
- Unique wireless security sensors and bracelets for protector of exhibits.
- Quick and easy installation.

Mikhailovsky Theatre (St.Petersburg)

- **Project size: 2,000 devices**
- **Market sector: Culture, leisure**
- **System type: Wireless fire alarm system**

Project description

The Mikhailovsky Theatre, one of Russia's oldest opera and ballet houses, was founded in 1833 and is located in a historic building in Saint Petersburg, designed by Alexander Bryullov.

In 2020, during the modernization of the fire alarm system, the wireless system Streletz was selected for the re-equipment. The facility is now equipped with a fire detection and alarm system, as well as a wireless dynamic evacuation system. The detectors alternately flash high intensity LED lights and generate white noise to clearly indicate the safest evacuation route.

Reasons for wireless use

This wireless system is an ideal solution for protecting crowded and heritage buildings, offering several key advantages:

- The system's high reliability due to the multiconnection self-configuring mesh network technology.
- The availability of a dynamic evacuation system that indicates the safest evacuation route in case of fire.
- Minimal interference with the interior of the building.
- Quick and easy installation without disrupting operations or causing messy construction work, protection of temporary exhibitions in a short time.
- Cost-effective: no fire-resistant cable lines and reduced installation work.

Opéra Royal de Wallonie (Belgium)

- **Project size: 1,500 devices**
- **Market sector: Culture, leisure**
- **System type: Wireless fire alarm system, wireless security system**

Project description
The Opéra royal de Wallonie is an opera house located on the Place de l'Opéra, in Liège, Belgium. The Opéra royal, as it is colloquially known, is one of the three major opera houses in Belgium. Built according to the plan of the architect Auguste Dukers, the theatre was inaugurated on 4 November 1820.
The building underwent a major renovation from March 2009 to September 2012, both exterior and interior. The historic parts have been restored to their original state. Its showroom, Italian-style and its stage machinery make it one of the most modern theatres in the world.
During the restoration and construction works, considerable attention was dedicated to ensuring the safety of the facility, as during performances, the theater can accommodate up to 1500 people. When selecting a fire alarm system, the installer primarily focused on the reliability and cost-effectiveness of the solution. As a result, the choice was made in favor of the wireless fire detection and alarm system Streletz.
The renovated Opéra Royal de Wallonie was inaugurated on 19 September 2012, with a performance of César Franck's 'Stradella' in the presence of the Belgian heir couple, prince Philippe, and princess Mathilde.

Reasons for wireless use
This wireless system is an ideal solution for protecting crowded and heritage buildings, offering several key advantages:
- The system's high reliability due to the multiconnection self-configuring mesh network technology.
- Minimal interference with the interior of the building.
- Quick and easy installation without disrupting operations or causing messy construction work, protection of temporary exhibitions in a short time.
- Cost-effective: no fire-resistant cable lines and reduced installation work.

Rattenberg school in Tyrol (Austria)

- **Project size: 1,000 devices**
- **Market sector: Education**
- **System type: Hybrid wireless and wired fire alarm system**

Project description
In 1384, a monastery of Augustinian hermits was founded in Rattenberg. The building was acquired by the municipal community of Rattenberg and repurposed as a school, which commenced operations in 1971. Over time, the school expanded and is now fully equipped with a modern fire alarm system in compliance with current regulatory requirements.
The fire alarm of the Rattenberg school in Tyrol is a hybrid system, combining wired devices from Labor Strauss and wireless components of the Streletz radio channel fire detection and alarm system. In the historical part of the school, the former monastery, wireless smoke detectors are installed. Wireless repeaters connected to a loop of an addressable analog system are used to establish communication between the radio detectors and a translator module. Modern extensions of the school are equipped with wired fire detectors, ensuring uninterrupted operation of the fire alarm system in all areas of the building—both behind thick walls and under vaulted ceilings.
The installation of wireless fire alarm systems and radio devices in addition to the existing wired system is carried out quickly and without significant complexities. This is particularly relevant for buildings with continuous occupancy, as the installation of wireless devices takes only a few minutes. Consequently, wireless fire alarm systems are widely used not only in historical buildings, churches, and museums, but also in modern facilities with continuous operations such as hotels, nursery schools, and schools.

Reasons for wireless use
- Quick and easy installation without decommissioning and messy work.
- Minimization of interference with the interior of the historical building.
- Economic efficiency: reduced installation work.
- Full compliance of the system with the requirements of the EN 54 standard.

Senate House Library (UK)

- **Project size: 1,000 devices**
- **Market sector: Education**
- **System type: Hybrid wireles sand wired fire alarm system**

Project description
The University of London was established in 1836. It is one of the largest and most prestigious universities in the United Kingdom. Its library is located in the building of Senate House in the very heart of London. This 19-story building, constructed in 1937 by the architect Charles Holden, became one of the first skyscrapers in London, reaching a height of 64 meters. The archive of the Senate House library contains over 3 million books.

In 2011, a comprehensive reconstruction was completed in the Senate House library, one of the stages of which involved the installation of a new fire alarm system. Installing a fire protection system that fully covered such a monumental structure was no easy task, considering that the building not only holds historical and architectural value, but also serves as a space for mass gatherings. The library's ancient books are exceedingly demanding exhibits. Any repair work could potentially cause harm to the collection, and risking their safety was out of the question. Furthermore, the equipment needed to be installed within the shortest timeframe possible.
Therefore, the installation company made the decision to install a hybrid fire alarm and alert system, combining the advantages of wired and wireless solutions. The Streletz wireless fire system was chosen for the radio channel system. In total, over 1,000 radio devices were installed on the premises.

Reasons for wireless use
- Fast and simple installation without decommissioning and messy construction work which can be dangerous for ancient books.
- Proven and reliable mesh-technology.
- Minimal interference with the interior of the premises, a matter of particular significance for buildings designated as cultural heritage sites.

The Hungarian Academy of Sciences (Hungary)

- **Project size: 1,000 devices**
- **Market sector: Science**
- **System type: Hybrid wireless and wired fire alarm system**

Project description
Founded in 1825, the Learned Society, or the Hungarian Academy of Sciences (as it came to be called after 1845), worked successfully up to 1848 in developing the Hungarian language, literature, and the national theater. It laid the foundations for scientific book and journal publishing in Hungary. It regularly awarded prizes for outstanding scientific and literary achievements. Today it is the most important and prestigious learned society of Hungary. Its main responsibilities are the cultivation of science, dissemination of scientific findings, supporting research and development, and representing Hungarian science domestically and around the world.
In 2009, a decision was made to modernize the fire alarm system on the premises. The complexity of implementing the alarm system at this location was determined by its architectural and decorative features: arches, vaults, paintings, and ornamental plasterwork, which made it impossible to lay cable lines of a fire system in certain areas. The solution came in the form of a hybrid fire alarm and alert system, combining the wired devices FI600 from Labor Strauss (Austria) and equipment from the wireless fire system Streletz.

Reasons for wireless use
- Minimization of interference with the interior of the historical building.
- Reliable wireless fire alarm system
- Installation of equipment within minimal time frames without taking premises out of operation.
- Full compliance of the system with the requirements of the EN 54 standard.

Projects in Russia:

- Hermitage, St.Petersburg
- Holy Trinity Lavra of Sergius, Moscow region
- Lytkarino Historical and Local Lore Museum, , Moscow
- Mariinskii Opera House, St.Petersburg
- Mikhailovsky Theatre, St.Petersburg
- Monument of urban planning and architecture of regional significance «Labazy», Perm
- Museum of Cryptography, Moscow
- Museum of the History of the Don Cossacks, Novocherkassk
- Museum-estate of M.A. Sholokhov, Veshenskaya
- Naval Cathedral in Kronstadt, St.Petersburg
- Pskov Kremlin, Pskov
- Rostov Regional Museum of Local Lore, Rostov- on- Don
- Saint Petersburg Stieglitz State Academy of Art and Design, St.Petersburg
- Scientific and Memorial Museum of N.E. Zhukovsky, Moscow
- Sheremetyevsky Palace, St.Petersburg
- Staraya Ladoga Fortress, Staraya Ladoga
- State Museum of Fine Arts named after A.S. Pushkin, Moscow
- State Museum of the East, Moscow
- Temple in honor of the icon of God Mother «Mammal», Bryansk
- Temple on Stank Dimitrov Avenue, Bryansk
- The main temple of the Russian Armed Forces and gallery «Memory Road», Moscov region
- Tretyakov Art Gallery, Moscow

International projects:

- Adam Smith Theatre, UK
- Cambridge university, UK
- Edinburgh Palace, UK
- Eton University, UK
- Library of University of London, UK
- London Library, UK
- Old City Hall in Oxford, UK
- Old Vic Theatre, UK
- Opéra Royal de Wallonie, Belgium
- Rattenberg School, Austria
- Residence of the Royal Family, Netherlands
- Senate House in London, UK
- The Hungarian Academy of Sciences, Budapest, Hungary
- The Queen's residence in Scotland (Belmoral Castle), UK

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