



Sistema de alerta temprana para ciudades

La base de la seguridad de una ciudad moderna

Las situaciones de emergencia surgen de forma inesperada: inundaciones, incendios o accidentes tecnológicos pueden poner en peligro a la población en cuestión de minutos.

En estos momentos, la rapidez de respuesta y la capacidad de la ciudad o del municipio para actuar de forma inmediata y coordinada son factores decisivos.

Aunque existen diversos canales para difundir mensajes de alerta — televisión, radio o teléfonos móviles —, las sirenas electrónicas integradas con un sistema de notificación masiva y una infraestructura de comunicación propia siguen siendo el método más fiable para la alerta masiva de la población.

Sistema de alerta temprana para ciudades y protección civil

El sistema municipal de alerta representa un sistema de alerta para emergencias que permite a las ciudades gestionar situaciones críticas de forma sistemática y fiable.

Se trata de una solución integral de alerta temprana y notificación masiva para:

- alerta inmediata de la población,
- gestión coordinada de situaciones de crisis,
- notificación automática a las personas responsables,
- supervisión y verificación del funcionamiento del sistema.

El sistema está diseñado para ciudades y municipios de cualquier tamaño. Puede funcionar de forma independiente a nivel municipal y, al mismo tiempo, permite su integración en estructuras más amplias de seguridad, monitoreo información y protección civil.

Warning Process During a Crisis Situation

1. Automatic Situation Analysis

The system continuously evaluates data from sensors and monitoring systems and immediately identifies threats.

2. Automatic Notification of Emergency Units

The system simultaneously informs crisis staff members, emergency services, and other institutions according to municipal emergency plans.

3. Decision on the Scope of Warning

The warning can be activated automatically based on predefined scenarios or manually- for the entire city, a selected area, or a specific group of sirens.

4. Activation of the Warning System

The system can be activated manually by an authorized person from the control center or automatically when threshold values in the monitoring system are exceeded (e.g., water level, gas concentration, technological sensors).

Integration with external monitoring and sensor systems ensures immediate response without delay.

5. Broadcast of Additional Voice Instructions

The system allows broadcasting specific voice instructions, such as advising residents to stay indoors, close windows, or prepare for evacuation.

6. Functionality check-up

The control center has immediate insight into the status of sirens and the success of warning activation. The entire process takes place within seconds.



Strategic Benefits of the Early Warning System for Cities

Full control over crisis situations - the city can activate warnings immediately without dependence on external communication channels.

Response within seconds - only seconds pass from threat detection to public warning.

Reliability even during infrastructure outages - the system remains operational during power, mobile network, or internet failures.

Targeted and clear communication - voice instructions can be broadcast only in affected areas, avoiding unnecessary panic.

Automated notification of emergency units - crisis and rescue services receive information immediately and in a coordinated manner.

Modularity and scalability - the system can be built gradually according to priorities and budget.

Integration into broader safety structures - compatibility with national and regional civil protection systems.

Key Elements of the Early Warning System for Cities

1

Control Center - Central Control and Monitoring

The control center can be adapted to the size and needs of the city. Smaller municipalities can use a compact OCP16 solution with a touchscreen for easy system operation. Larger cities can expand with subordinate dispatch workplaces for city districts, enabling flexible control and local system management.

The control center is equipped with Vektra® software, which provides:

- control and monitoring of all sirens,
- communication channel supervision,
- feedback on device status,
- crisis management support,
- automatic notification of responsible personnel,
- integration of monitoring and sensor systems.

From the main control center, it is possible to control:

- sirens of the warning system for cities,
- autonomous sirens in industrial facilities,
- indoor evacuation public address systems,
- outdoor public address systems,
- municipal public broadcasting systems.

2a

Pavian Electronic Sirens

acoustic element of the outdoor warning system

They provide:

- loud and clear alerts,
- broadcasting of voice instructions,
- localized warning for selected areas.

Thanks to high performance, weather resistance, self-diagnostics, and backup power supply, they operate reliably and efficiently even in demanding conditions.

2b

Temporary Electronic Sirens

The solution may also include mobile sirens such as **PAVIAN Portable** and **PAVIAN Car**, which extend warning capabilities beyond fixed infrastructure.

Portable and mobile sirens enable rapid deployment in the field, temporary area coverage, or support for emergency units directly at the incident site. This ensures warning capability even where fixed siren networks are unavailable or when flexible response is required.

3a

Communication Infrastructure

The system uses at least two independent communication channels (primary and backup). For higher redundancy requirements, additional communication paths can be designed. Both primary and backup communication can be tailored to customer preferences- the technology depends on the city's requirements, available infrastructure, and required redundancy level.

Primary Communication Channel - Two-way radio infrastructure, LAN, mobile data, or digital radio networks enable:

- transmission of commands to sirens,
- feedback reporting on their status.

3b

Backup Communication Channel

may use:

- mobile data networks,
- satellite communication,
- POCSAG,
- or the same technology as the primary line (depending on project requirements).

If necessary, a fully redundant infrastructure with identical parameters to the primary line can be designed.



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