National warning system

Why build a national warning system

Countries establish public warning systems to warn their population against **common dangers**. Historically, typical hazards included military threats (wars, bombing, missile attacks) and natural disasters (floods, tsunamis, and earthquakes). Modern industrial production has brought the danger of industrial disasters, and the current world has brought terrorist and war attacks.

Regarding emergencies caused by such dangers, countries, represented by relevant institutions, have developed a variety of emergency plans to instruct those in charge/the first responders on what measures and procedures are to be taken in such situations. These measures also include the warning procedures established by national acoustic warning systems. Despite the existence and usage of other forms of notifying the public of impending danger, for example, television, radio, and mobile phone, **warning systems based on electronic sirens** with their own communication infrastructures represent **the most reliable and effective method of mass warning** in endangered areas.

Description of a national warning system

This unique and complex solution uses the entire Telegrafia's technology and product portfolio. **Within a few seconds**, the system can activate any siren or group of sirens (depending on access rights) from any warning and notification centre on the national territory. **Within a few minutes**, the feedback information on the successful activation is provided by the system. It is possible to activate both the state-owned and state-operated sirens and the sirens of autonomous warning systems run by industrial enterprises and equipped with an interface for communication with the national warning system. The solution also allows third-party systems to provide and process data, making it one of the most critical elements of any comprehensive warning system. The warning and notification centres are equipped with sophisticated Vektra® software for managing the siren network and automating the processes after an emergency is declared.

The warning and notification system covers the entire territory of the state and consists of the following:

- The main warning and notification centre at the state level
- Warning and Notification Centres at the regional level
- A communication infrastructure connecting the individual warning and notification centres to a network of **several thousand Pavian sirens**
- Autonomous warning systems built and operated by industrial threat actors
- Interconnection with third-party devices and software

Advantages of a national warning system

- Wide area coverage in any environment with hundreds to thousands of sirens
- Control by sophisticated Vektra® software
- Activation of any siren from any warning centre in a few seconds
- Semi-automatic activation of early warning and notification in an emergency
- Activation feedback within minutes
- Activation of national, state-controlled, and private autonomous warning systems
- Early warning of the population in endangered areas
- Efficient and easy emergency management due to live reporting, text-to-speech, and excellent intelligibility of the spoken word
- Notification of first response specialists (the police, rescue, and city management units)
- Intelligent operation thanks to silent siren tests, remote self-diagnostics, and the possibility of interfacing with third-party systems
- The full operation, even in the event of a power failure with the possible use of solar panels

1. Main national early warning and emergency notification centre

The main national early warning and emergency notification centre is the superior control centre of the entire system. The system is fully backed up by batteries and fully operational even after power failure. The centre allows control of all national sirens, including those that are part of autonomous warning systems. It is equipped with the Vektra® software to monitor the status of the entire technology (both sirens and the communications infrastructure), control the sirens, and automate all operational activities during the standard centre operation and on the declaration of a state of emergency. This includes the routine communications amongst centres, between centres and industrial enterprises and, upon the declaration of a state of emergency, the notification of the responsible persons and institutions by phone, email, and text messages. In addition, the centre automatically keeps complete records of phone and radio communications within the provided communication infrastructure.

2. Regional/Local early warning and emergency notification centres

Regional and local early warning and emergency notification centres are fully autonomous workstations providing the same activities as those offered by the main centre; however, only on a regional and local basis. This local limitation is defined only by access rights so that each early warning and emergency notification centre can take up the role of the main or any other warning and notification centre. At the same time, in the event of a communication breakdown with the main early warning and emergency notification centre, the local centres operate fully autonomously. They can perform all operational functions within the entire area/location.

3. Communication infrastructure

The communication infrastructure ensures immediate communication between the individual warning and notification centres and other elements of the monitoring, warning, and notification system via primary and backup communications channels (e.g. analogue radio; digital radio MOTOTRBO, TETRA and others; TCP/IP; GSM data). It also allows the interconnection of this system with third-party systems.

4. Pavian electronic sirens

The Pavian electronic sirens are used as terminal acoustic elements. They are designed to cover a specific populated area by the acoustic signal of a desired acoustic pressure. In most countries, both the populated area and the value of the desired acoustic pressure (depending on the background noise of the relevant area) are stipulated directly by legislation. Since the early warning and emergency notification system must meet extremely stringent requirements, all the advanced functions of the Pavian siren series are fully used, particularly its autodiagnostic functions.

5. Autonomous warning systems of potentially hazardous industrial companies

Autonomous warning systems of potentially hazardous industrial companies are independent early warning systems built and operated by these companies (operators of water dams, power plants, industrial enterprises, and others) which warn the public against an emergency in an endangered area in the event they cause it. Although these local warning systems are independent, each siren within the system is equipped with a module controllable via radio by the RDS system from the national early warning and emergency notification system and operable in case of an emergency even though these companies do not cause the emergency. In addition, autonomous public threat warning systems are connected to the national warning system; therefore, the national system control room can be automatically notified of any local siren activation.

6. Interaction with third-party devices and software

The nationwide warning system also allows third-party systems to provide, process and evaluate data, which makes the process faster and more efficient when an emergency arises.
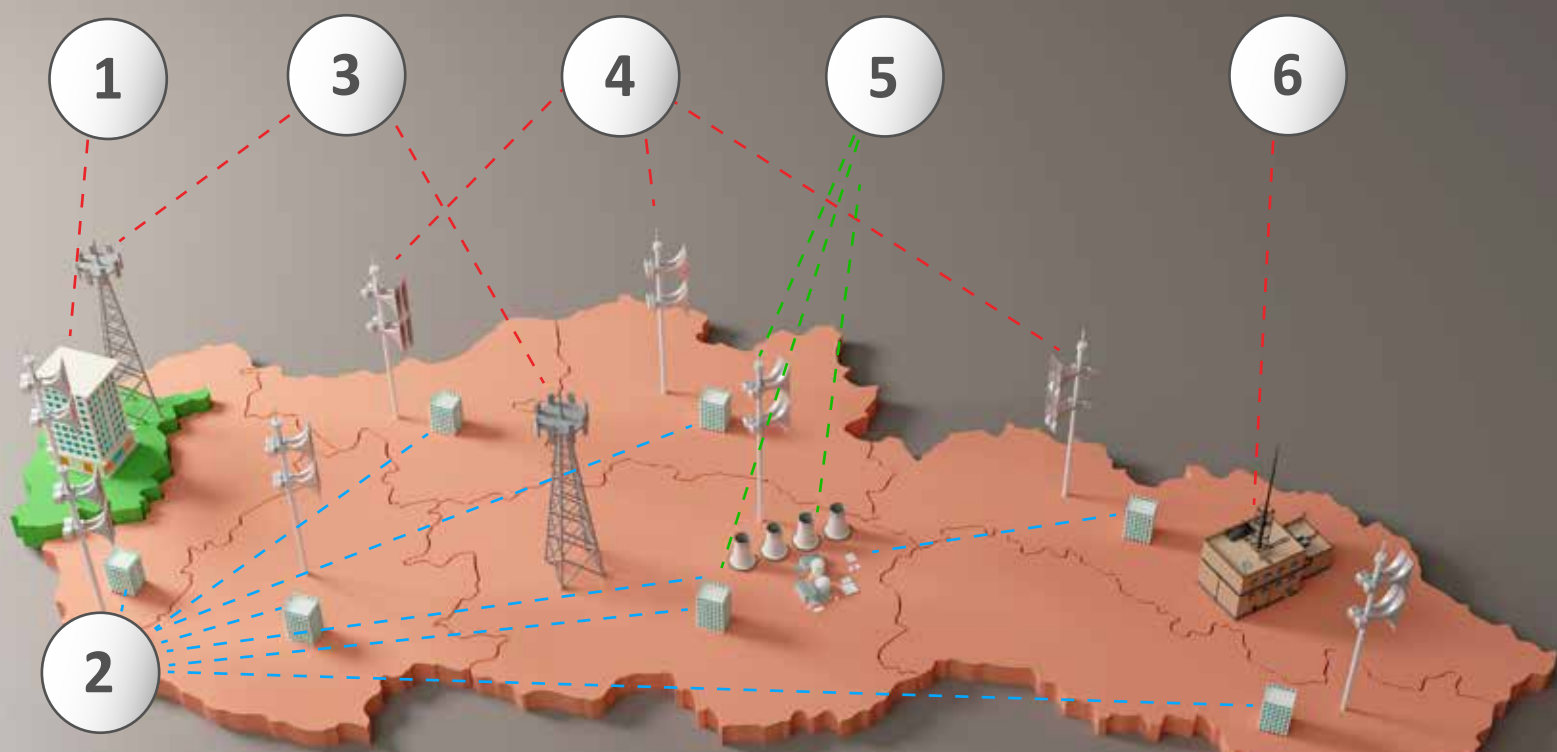
Telegrafia a.s.
Lomená 7
Košice, 04001
Slovakia

🌐 www.telegrafia.eu

✉ sales@telegrafia.sk