CRITICAL INFRASTRUCTURE
Video Surveillance solution

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CRITICAL INFRASTRUCTURE CHALLENGES

Critical infrastructure consists of systems and assets that are essential for the maintenance of basic economical and societal functions, including health, safety or economic well-being of a nation and its citizens. Some examples are military ports, nuclear and power plants, manufacturing sites, industrial facilities, and other crucial parts of a nation’s infrastructure. These systems and assets are of such a vital importance that their disruption or destruction would cause serious issues to national security. It is therefore necessary to protect these critical infrastructures and other important industrial objects from potential threats.
THE LOGIPIX CRITICAL INFRASTRUCTURE VIDEO SURVEILLANCE SOLUTION

Conventional solutions are usually unable to avoid false alarms and provide footage that meets the quality requirements of such facilities. Logipix, however, is able to provide images at 200 MP resolution and efficient IR lighting for night periods. It also works together with PID sensors and offers video content analysis to minimize false alarm rates.

The Logipix Critical Infrastructure Video Surveillance solution can aid the protection of national security by effectively covering critical areas that are of great importance. The Logipix solution can cover wide areas and creates a more secure and controllable environment. With Logipix, incidents that may lead to fatal consequences are preventable.

KEY COMPONENTS

- 20 MP Logipix ONE camera
- 200 MP Logipix Panorama camera
- Logipix 3D microwave radar
- 6 MP Logipix PTZ camera
- 5 km, 2 MP Logipix Long Range PTZ camera
- Logipix Network Video Recorder
- Logipix Control Center client and server software

The Logipix Critical Infrastructure Video Surveillance solution is based on the large, stitched images of the 200 MP Logipix Panorama cameras. The 200 MP images are recorded at 20 FPS. They are synchronized and quick to scan through. The Panorama camera can work together with 20 MP Logipix ONE cameras, the 5 km Long Range PTZ and the 6 MP PTZ cameras, so all areas can be covered with the highest resolution. The cameras provide full coverage even at a long distance, and without installing hundreds of conventional security cameras.

The cameras have precise IR laser illuminators, therefore they are able to provide stunning images at night and also allow the automatic VCA to function effectively in areas with no lighting. The 3D microwave radar helps in the monitoring of internal roads and footpaths by detecting speeding. In some specific environments it even aids perimeter protection.
The Logipix Network Video Recorder has a 7 Gbit/sec recording speed and a storage capacity of 160 Tbyte that can be further expanded with external storages, reaching a total 480 Tbyte capacity. This makes the device ideal for recording and storing the high-resolution images. The LNVR utilizes the scalability of JPEG2000 compression standard to remain bandwidth-effective. Using this image compression technology, maximal image quality can be provided without any compromise.

The Control Center, our Video Management Software, has several specially developed functions that facilitate Critical Infrastructure video surveillance. PTZ cameras can be controlled manually, while the ePTZ function allows that there is a zoom on the panoramic images to a preconfigured area if trigger events happen. The software also makes an automatic alternation of monitor profiles once alarms arrive to its interface. In addition, archive footage can be displayed on the monitor profile alongside the live images.
The Logipix panoramic technology makes it possible to geometrically stitch individual images together. As a result of the synchronized images, there are no glitches or missing objects on the panoramic image. There is also white balance correction between the images. The reason for using only one large picture, instead of many individual ones, is to facilitate the everyday monitoring procedures. As operators do not have to look through dozens of images, observation is more convenient.

**MAIN FEATURES**

### Panoramic images

The Logipix panoramic image with white balance correction

Panoramic image without white balance correction

The Logipix panoramic image with image synchronization

Panoramic image without image synchronization

### Live and archive video retrieval

The Control Center not only displays live images, but it also makes it easy to find an archived event with the help of the thumbnail images of the interval. The archived pictures are presented in the same way as the live images, can be zoomed in and arranged at will. These pictures can also be displayed simultaneously with the live ones.

### Video Wall

The Video wall consists of multiple conventional workstations and gives an overview of the entire monitored area, even with panoramic images on multiple high-resolution displays. It can also display manual or automatically zoomed images of different regions of interest.
Multi-level detection

The Critical Infrastructure Video Surveillance solution provides multi-level, automatic intrusion detection functions. Certain areas within the field can be armed or disarmed individually. In armed state, different areas can provide alarms with different severity levels in case of a detected movement. This way the entire area and buildings are under control.

The purpose of multi-level building and industrial construction monitoring is also to provide monitoring beyond intrusion detection. The Logipix VCA can detect objects that pose a threat for undisturbed operation in such areas. This includes, for instance, the detection of fire, animal or human presence where it is not allowed. The VCA relies on a Multidimensional Gaussian Background Model to continuously adapt to the background and help avoid any false alarms usually generated by the moving parts of background objects, for example plants blown by the wind.

Traffic management

In order to have effective monitoring of internal roads and footpaths, the system allows the detection of speeding vehicles and wrong-way driving. It is also possible to detect the leaving of designated paths, thus making the reaction even faster.

Perimeter protection

The fence is the first line of defense of critical infrastructures with a standard layout. The Logipix cameras can be arranged in a structure that provides full coverage of the perimeter area. It is also possible to have automatic tours which scan through the entire environment where the VCA can detect any illegal activity.

If there is no fence on the critical infrastructure perimeter, the area can be monitored with a Panorama camera from a single point of view. Either case, the VCA can rely on the quality images and detect any movement near the perimeter. There are different levels of alarm, allowing operators to prepare and only react to actual incidents in the interest of efficient prevention.
THE STRENGTHS OF THE SOLUTION

• With the high-resolution images and the VCA of the Logipix Critical Infrastructure solution, it is possible to detect the most common incidents, including malfunction, damaging, sabotage, loitering, and the presence of drones, fire, smoke, birds, other animal, vehicles or humans where they are not allowed.

• The Logipix cameras provide large panoramic images with a resolution high enough for face recognition.

• It is of vital importance that the sharp and clear Logipix footage can act as a basis for prevention and as irrefutable evidence in law enforcement procedures.

• The Logipix functions can help detect intrusion and other potential threats, and make critical infrastructures safe through prevention.

• The lower rate of false alarms means more security and leads to more reliable operation. As less manpower is required, this makes it a cost-effective system.

• The components of the Logipix Critical Infrastructure solution utilize the scalable JPEG2000 image compression standard making it possible to remain bandwidth-effective.

• The Logipix quality components are designed and manufactured to provide the best result outdoors, even in severe weather conditions.
The protection of critical infrastructures can be greatly enhanced, as multiple severity levels of detection makes it possible to have efficient control over the whole area. The solution also makes quick reaction possible, that is essential in critical areas.

Thanks to the Logipix Critical Infrastructure Video Surveillance solution, these areas are less vulnerable to physical threats, allowing increased preparedness.
ABOUT LOGIPIX

Logipix Technical Development Ltd. is a privately-held company established in 1996 in Budapest, Hungary. Since then, Logipix has grown into the international company that it is today – one of the most innovative developers and manufacturers of end-to-end video solutions. Today the main profile of the company is to provide specially designed, high-end video surveillance solutions considering the various characteristics of different application areas.

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