



THE LOGIPIX PANORAMA SOLUTION

CHALLENGES OF WIDE AREA SURVEILLANCE

Effective wide area surveillance is a significant challenge. A traditional system using dozens of low-resolution cameras is not able to effectively cover a vast area. If operators have to scan through a large number of camera images, important things might go unnoticed. Installation and maintenance is also time-consuming and expensive with a traditional system.

Logipix, however, has an effective Panorama solution that can observe an area from a single viewpoint and solves many issues of wide area surveillance.

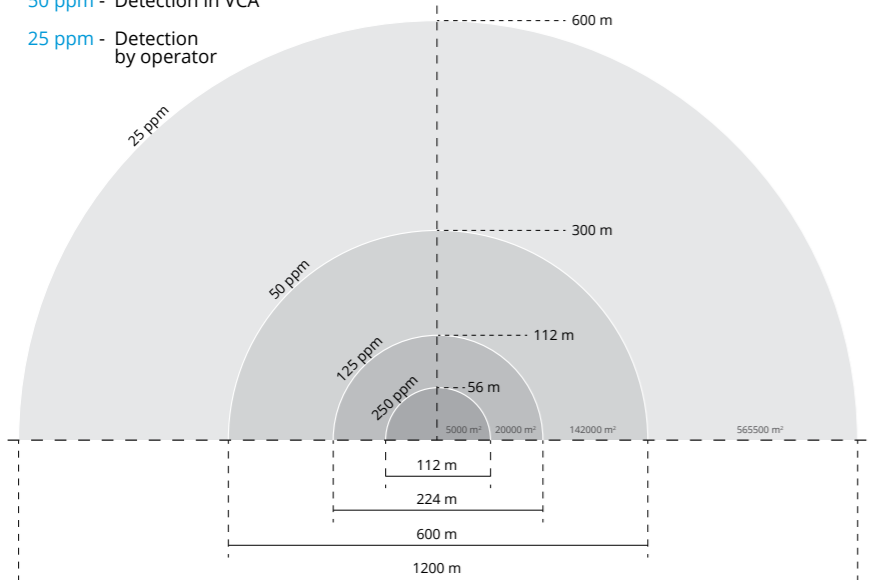
THE LOGIPIX PANORAMA SOLUTION

The Panorama solution is offered in different constructions.

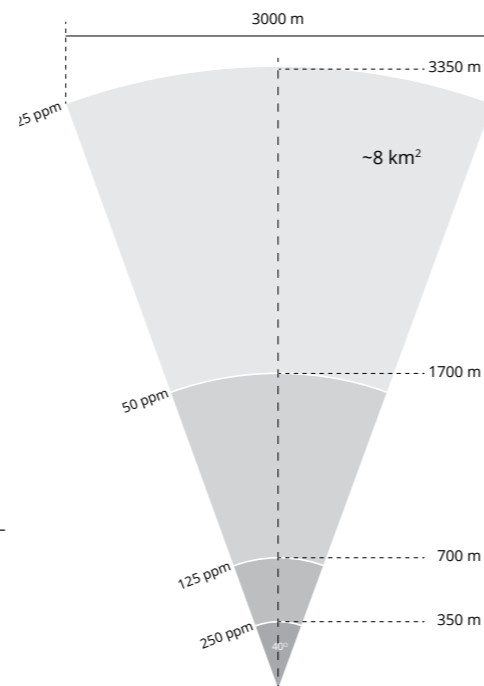
Hardware & software components

The Logipix Panorama solution	
200 MP Panorama camera	Virtual Panorama based on 20 MP Logipix ONE cameras
Network Video Recorder 3 rd generation	
Full HD, 6 MP PTZ Cameras, Long Range PTZ 5 km	
Control Center Professional or Ultimate software pack	

- 250 ppm - Identification
- 125 ppm - Recognition
- 50 ppm - Detection in VCA
- 25 ppm - Detection by operator



180° Panorama



40° Panorama

The 200 MP Panorama camera

Our engineers have developed multi-sensor **Logipix Panorama cameras** with several hundred megapixels that are specifically designed to meet the surveillance requirements of wide areas. They can deliver **200 MP** or even higher resolution panoramic images at **20 FPS**.

The cameras can **operate in extreme environments**. They are equipped with a complex thermal control solution to perform well in high or low temperatures and both humid and dry conditions. The fans, heat pipes, glass heating, and the Peltier make ensure that the cameras always stay at the required operational temperature. The Panorama is available also in white design, which has been developed specifically to operate in extreme hot environments.

The Panorama cameras are **built to last**. The all-metal construction of the camera housing, with quality glass windows and sunshields in front of each lens, results in a massive, robust, reliable construction so that the camera can always deliver quality footage. All Panorama cameras can clean themselves, thanks to their water tank and wipers. The cleaning procedure can be scheduled and automatically started, so maintenance of the camera is easy, fast and effortless. The devices give warnings if their water tank needs to be refilled and can start the cleaning procedure automatically.



The Virtual Panorama

The **Virtual Panorama** is based on several individual **20 MP Logipix camera** images that are stitched together to create large panoramic views. The cameras provide an expanded view for the operators with resolutions up to hundreds of megapixels. There are no hidden or redundant areas in the stitched images. As cameras are installed individually, the structure of the solution is easily tailored to newly emerging needs.



The Network Video Recorder

The solution is flexible and one can choose from different models of the 3rd generation Logipix Network Video Recorders that are designed to handle the huge amount of data that the Panorama cameras produce. Logipix recorders have up to **160 TB storage capacity** and can be customized to individual needs. One model

of the 3rd generation designs can be further expanded with our specially-developed external storage units, reaching a total of **480 TB capacity**. The Network Video Recorders can record the high-resolution images of the Logipix cameras even at **7 Gbit/sec recording speed**.



Working together with other devices

The Panorama camera can work together with the **6 MP, Long Range 5 km** or the **Full HD Logipix PTZ cameras** and the **20 MP Logipix ONE camera**. The PTZ can be controlled on the panoramic images. Also, intelligent functions such as the **ePTZ** or the **PPM expansion** make surveillance easier and solve dynamic situations.



The Video Management Software

The large panoramic images are easy to handle with the extended versions of our specially-developed video management software, the **Control Center Pro** and **Control Center Ultimate**. It is also possible to search and play archive recordings back, which may be of use in later law enforcement procedures that require footage of incidents. Video surveillance is therefore made much more simple and efficient with the Logipix system. The Control Center handles a stitched panoramic image as a single image. Security operators in control rooms are much more likely to spot suspicious activities while looking at one high-resolution panoramic image than working with dozens of separate images.



FEATURES AND FUNCTIONS

Image stitching

The Control Center has an intelligent stitching function that makes it possible to create large panoramic images. The images that are produced by individual sensors are not simply overlapping, but are geometrically transformed for an accurate merge.

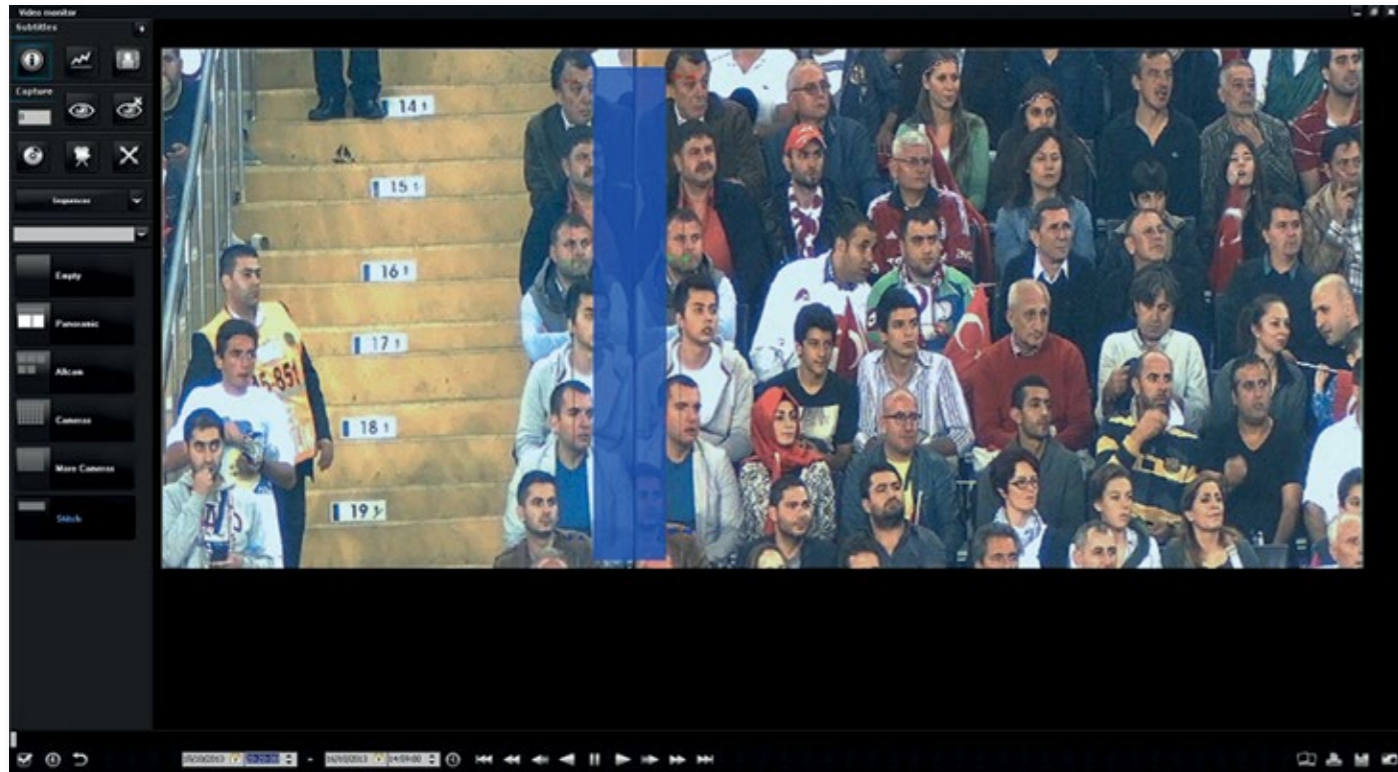
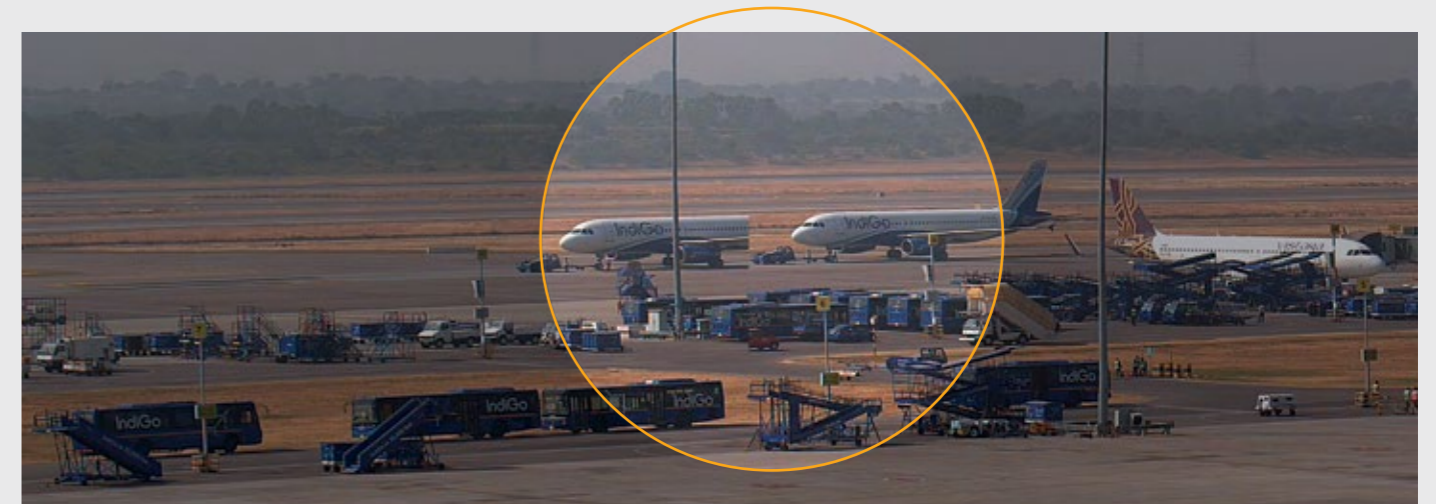


Image synchronization

The Logipix Panorama camera images are synchronized, resulting in a flawless view. There are no glitches and observed objects can appear in the footage as they are.



Panoramic image without image synchronization



The Logipix panoramic image with image synchronization

White Balance Correction

The Control Center also provides efficient white balance correction as well to smoothen the color gradient between the stitched images. This successfully creates natural, quality footage.

Video Content Analysis

Advanced computer vision technologies mean the future of video surveillance. Logipix developed hardware-based **Video Content Analysis** functions that together with high-resolution panoramic images make monitoring incredibly effective.



Panoramic image without white balance correction



The Logipix panoramic image with white balance correction

The Logipix VCA relies on a **Multidimensional Gaussian Background Model** that continuously adapts to the background. The VCA is able to detect, track and differentiate animals, humans, cars, trucks, aircraft and other vehicles in different environments. These object detecting and tracking functions allow us to create high-end solutions for instance in the field of airport monitoring, border surveillance or critical infrastructure surveillance.

Capture Camera function

Logipix engineers developed the Capture Camera function that helps **guide the attention of operators** while monitoring with Panorama cameras. Operators can use an **event grid** beside the live stream wherein automatically triggered events appear. The event signals can come from the VCA, 3D microwave radar or any sensor within the system. Operators can explore and verify the alarms by a single click that triggers a popup camera window which shows a related **archive loop** of the event.

Intelligent zoom functions

Logi-zoom

The JPEG2000 standard stands as a basis for the Logi-zoom function that makes it possible for our NVR to store images in full resolution, but send only the required, zoomed picture area in high resolution to the

monitoring center, while the rest of the image is sent in a lower resolution.

PTZ control

Assign a PTZ camera to the Panorama by placing guidance points on both images, which allows control of the PTZ on the panoramic image. Another Control Center function allows the operators to control the PTZ cameras by clicking the desired areas on a map.

ePTZ function

Define areas in the panoramic image to have a Logipix PTZ camera automatically turn and zoom to these areas when trigger events happen. Also, a zoomed area of the panoramic image is displayed in a special zoom window.

PPM expansion

Select a priority area within the area observed with panoramic images. Set a Logipix ONE camera with higher PPM value to allow operators able to continuously monitor this area at an even higher resolution.



STRENGTHS OF THE SOLUTION



- Our specially-developed stitching technology provides a seamless panoramic view without object duplication or hidden objects, and disturbing color gradient differences at image borders.
- The Logipix Panorama solutions provide large panoramic images with a resolution high enough for face recognition and also for automatic presence detection of individuals even from kilometers away.
- Operators can zoom in these panoramic images and use them if they were using binoculars. They can utilize the benefits of hundreds of megapixels during both live monitoring and archive playback.
- Large panoramic images ensures better spatial awareness for operators within the monitored area, as the space is not split by individual cameras on a confusing monitor profile.
- Combining panoramic images with the Logipix Video Content Analysis results in a solution that facilitates monitoring even in the most challenging environments and situations.
- The sharp and clear Logipix footage can act as irrefutable evidence in later law enforcement procedures.
- Our specially-developed Logipix Control Center ensures the convenient management of footage. Since it is easy to learn, the training of operators can be fast and save time.
- The components of the Panorama solution utilize scalable JPEG2000 image compression standard, which makes it possible to remain bandwidth-effective.
- Maintenance is also easy and cost-effective as less devices and resources are needed.

LOGIPIX END-TO-END SURVEILLANCE SOLUTIONS

See how our Panorama solution forms the important basis of several Logipix end-to-end surveillance solutions.

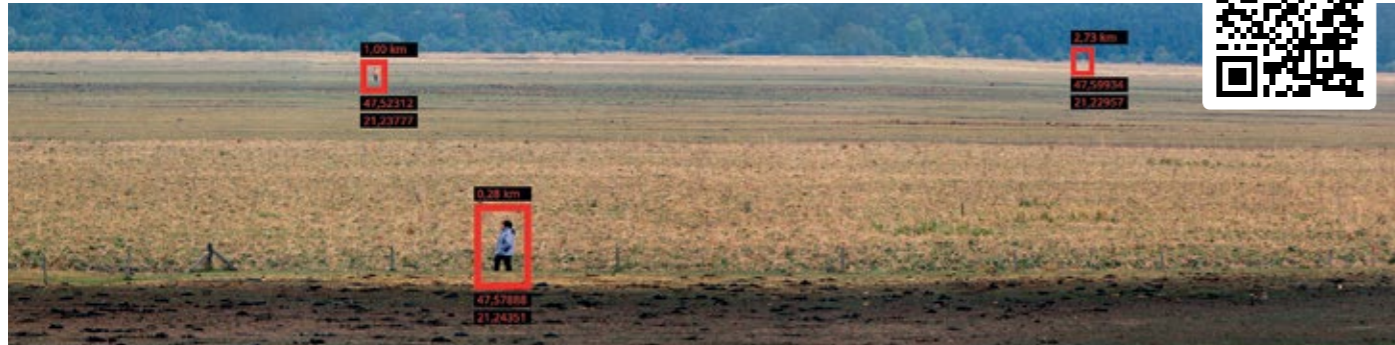
Airport Video Monitoring solution

With the help of the Panorama cameras, both landside and airside areas of airports can be covered effectively. Logipix ensures security in all airport areas and also serves Ground Support Equipments and aircraft logistics at the airside on the ground. Operators can monitor the whole airside area with several hundred megapixel panoramic images, and owing to the resolution they can utilize zoom functions just as they were using binoculars. VCA-based object tracking and object labeling are also possible on the panoramic images.



Border Control Video Surveillance solution

The Logipix 200 MP Panorama camera plays a crucial role in border surveillance as it can cover long stretches of borders and together with VCA can automatically detect suspicious objects even 3 kilometers away. The Panorama cameras are able to work together with 3rd-party Thermal PTZ cameras and 3D microwave radars. This makes it possible to prevent illegal activities and react to potential threats.



Critical Infrastructure Video Surveillance solution

The Panorama solution can aid the protection of national security by effectively covering critical areas that hold great importance and experience significant threat. Thanks to the panoramic images, critical situations can be more easily understood, which supports quick decision making and allows much better control of any situation.



Safe and Smart City solution

As Panorama cameras can cover wide areas, one of their applications is in smart cities. They provide a resolution that is high enough for face recognition. The intelligent zoom functions make surveillance easy and reliable.



Stadium Video Surveillance solution

The Virtual Panorama camera was specially developed for video surveillance in stadiums. Its flexible camera structure is ideally suited for all stadium designs and sizes. The large panoramic images ensure face recognition at every seat in the stadium, resulting in a safe and secure venue for all spectators.



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 surveillance 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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