

Axis cameras enhance security and driver's overview in EVO 1 trams.

Tough installation, technology and esthetic requirements met in comprehensive surveillance system in ultramodern vehicles.



Organization:
PRAGOIMEX a.s.

Location:
Czech Republic

Industry segment:
Transportation

Application:
Safety and security

Axis partner:
AMiT, spol. s r.o.

Mission

PRAGOIMEX a.s., a Czech engineering company operating under the Alliance TW Team, sought a high-quality surveillance solution for its new low-floor one-wagon EVO 1 trams. A camera system is necessary in these ultramodern vehicles to provide the driver with a good overview of the situation both inside and outside the vehicle. The system also had to provide security and enable video recording for backward analysis in case of an accident or vandalism or other criminal wrongdoings.

Solution

AMiT s r.o., which focuses on electronic systems in rail vehicles, proposed a solution that used AXIS M3114-R Network Cameras. The cameras were installed outside above each door and other cameras are located in the vehicle interior. Video from cameras, without the need to be stored first, is projected directly to a 15-inch IP display installed above the driver's head, which replaces rearview mirrors installed in older models. When selecting suitable cameras, the company had to take other requirements of the customer into account, such as fitting the cameras into the overall tram design.

Result

The AMiT solution uses top-notch technology of Axis network cameras. Thanks to these, the solution completely meets surveillance requirements in today's low-profile trams where cameras are indispensable for the driver. The cameras also provide the driver with significant comfort – he easily gets a very detailed overview of what's happening in the entire vehicle. The option to record video and remote surveillance bring the driver and passenger security to a higher level. Based on the Ethernet network, the system can be easily extended. The video feed from cameras complies with high quality requirements even when lighting conditions are not perfect and the system does not suffer from frequent breakdowns as analogue systems often do. The cameras are unobtrusive and the aesthetic aspect of the solution is also met.

“For our customers, we always try to find the most advanced technology that meets today’s public transport requirements of security and reliability. To perform video surveillance, the AMiT IP camera system uses Axis cameras and is a reliable and cost-effective solution and our operational experience shows it brings more security to passengers and comfort to the drivers.”

Ing. Pláněk Miloslav, deputy managing director of PRAGOIMEX a.s.

Cameras are invaluable particularly in articulated trams

The main reason to install a digital camera system was to provide a comprehensive video surveillance that would cover all hard-to-meet requirements on the solution for public transport vehicles. It encompasses a wide range of technology requirements and installation limitations in a vehicle like the supply voltage range or very specific requirements on communication interface. Installation conditions and the tram design, which could not be affected in any way, proved to be another very limiting factor. Security requirements, mainly the system’s resistance against vandalism, both of the cameras installed inside the vehicle and those located on the outer part of doors, represented another important aspect of the solution.

Thanks to AXIS M3114-R Network Cameras the driver’s area overview was substantially enhanced. This solution proved to be perfect in articulated trams where the sight and monitoring of the passenger area is always difficult and often impossible to perform without high-quality camera technology.

Camera usage

The cameras are primarily used to monitor the exterior around the tram on the door side, i.e. where passengers mainly move during its standard operation. This way, the cameras virtually substitute for rear-view mirrors and substantially enhance them. Moreover, the cameras monitor the getting-in door space except the door close to the driver’s cab and the vehicle interior.

The main benefit for the end user, the Prague Public Transit Co. in this instance, is that the cameras enhance passenger security when getting in or out of the vehicle and the driver’s comfort during the vehicle operation. Nevertheless, the cameras can also be used as a very efficient security feature of the vehicle. If the system is deployed with a recording unit, the cameras can provide a substantial support during investigation no matter whether injuries, vandalism, thefts or other criminal activities are investigated.

Analog vs. digital IP camera technology

AMiT, who selected and installed the camera system using AXIS M3114-R, has a long business history and, in turn, experience with still fairly common analog cameras that compete with IP cameras mainly by price. However, the standard operation repeatedly demonstrated the analogue signal suffered from a low resistance against interferences from the trolley wire when installed in traction vehicles like trams, trolleybuses or electric trains. A solution based on IP cameras provides a much more elegant approach where it is not necessary to protect cameras against breakdowns and interferences with additional features. Moreover, Axis cameras are equipped with a special application layer able to extend a simple surveillance system by intelligent features like counting passengers who travelled in the vehicle.



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