CCTV system type TVIP-1M

Our closed circuit television system TVIP-1M is designed for audiovisual monitoring and supervision of railway infrastructure objects. In particular it is used at cat. B, C and D non-guarded level crossings, but it may also be used for monitoring of station platforms, railway sidings, etc.

To that end the system is fitted out with cameras for visual observation of the supervised area and microphones that enable ongoing acquisition of audio events. The system also enables remote observation of the monitored area or object from the control room or railway security service room. The system TVIP-1M is also fitted with a recorder, used to store the acquired audiovisual feed.

SYSTEM COMPONENTS

The system TVIP-1M comprises the following:

1. Camera assemblies

Camera assembly comprises a camera with a housing and a lens, and an (optional) independent infrared emitter. There is a general-purpose land observation camera assembly, as well as dedicated assembly for acquisition of license plates. Corresponding systems are fitted out with dedicated mounts that enable their mounting to various types of conical metallic or laminate posts. Also a suitable adapter is available to enable mounting of camera assemblies on pre-stressed pre-tensioned concrete posts. I cameras used in the system ensure correct representation of images in broad dynamic range. System cameras are integrated in housings ensuring required protection against weather conditions and immunity to mechanical impacts. Zoom lenses used ensure accurate framing of the image observed and integration of additional IR illuminators enables operation regardless of ambient light level. If listening to acoustic events form the supervised area is critical, camera assemblies of the system TVIP-1M may be also fitted with microphones. In order to facilitate installation and maintenance of the system, cameras with remote zooming capability are used. This functionality is particularly helpful when cameras have to be adjusted under adverse weather conditions, since it may be performed from a web browser.

All cameras used with the system enable automatic switching between day and night vision mode and are always fitted out with mechanically controlled correction filter for colour (day) mode. Camera assemblies may be operated in temperature range - -40°C to +65°C and their protection grade is IP65. At locations particularly exposed to risk of devastation, housings with mechanical strength IK-9 or better are used. System cameras enable the connection of power supply in PoE standard.

2. Recordingg and power supply modules

Recording module is responsible first and foremost for supplying outdoor devices, such as cameras and Infrared illuminators, and comprises NVR recorder with a disk bank used to record audiovisual feed from the supervised area. Apart form that the recorder functions as a server to enable remote access to audiovisual materials saved. In such case, the recording module is fitted out with dedicated transmission device, e.g. optical media converter or DSL modem. The recorder may be fitted out with license plates recognition function. Io order to ensure correct synchronisation of recorded material with real time, the system TVIP-1M is fitted out with GPS-based time server. The recording module is delivered as a metallic wall-hanged installation cabinet, with diagnostic monitor and USB port for connection of external memory on its front door. The UPS module (MZG) is also delivered as a metallic standing or wall-mounted cabinet, with integrated UPS power supply unit and the battery bank to enable uninterrupted operation of the system for the assumed duration.

3. Remote visualization module

Remote visualization module of the system TVIP-1M comprises a PC and TFT monitor, screen size as required by the user, or ALL-IN-ONE integrated computer; it is employed when remote monitoring of the supervised area is required.

Client application the module is fitted out with enables:

- real time preview of camera feed,
- listening to sounds from the object,
- preview and additional storage of recorded feed,
- remote configuration of the recorder (to the limited extent),
- customization of access to system functionalities,
- possibility of connecting multiple servers to create single client station,
- displaying failures in the monitoring system at the level crossing, especially in the absence of camera feed from any of the cameras.
- In order to ensure autonomous operation, in case of power grid failure, the visualization module needs to be supplied via UPS module (MZG).