

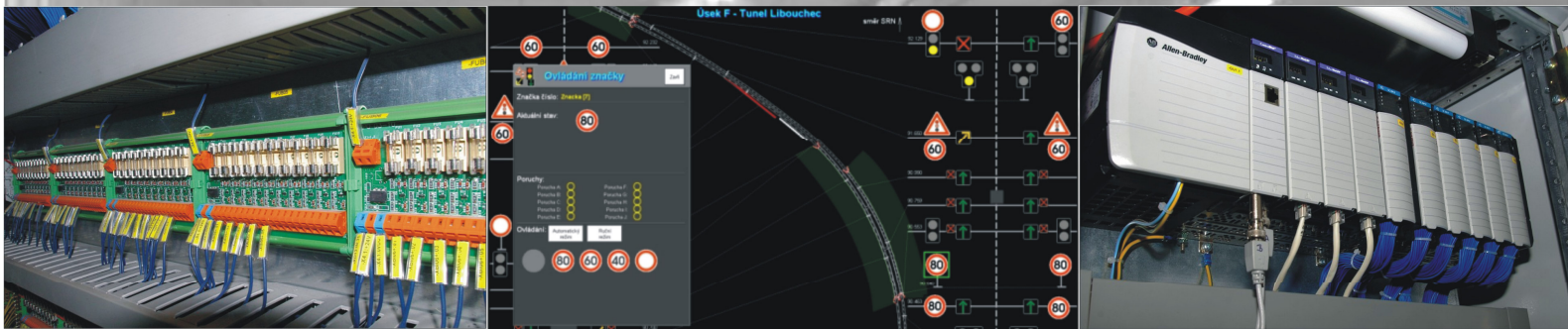


Supplier of Telematic applications for Highways and Tunnels

Tunnels Panenska and Libouchec

Highway D8

The trace of highway D8 interconnects the capital city of Czech Republic, Prague with the German highway A17.



Tunnels Panenska and Libouchec

Libouchec Tunnel has length 620 m while tunnel Panenska has length 2220 m. Tunnels are interconnected via the 900 m long bridge decking forming a complex technological unit. Both tunnels are equipped with most advanced technologies ensuring the safety of the passengers using the tunnels. The technological parts include accommodation, ride able and emergency lighting, electronic fire system, complex three stages electrical power supply, camera system with automatic video-detection, traffic monitoring and control, SOS rescue system and evacuation radio. All above mentioned technologies are automatically operated by the central control system.



The Panenska and Libouchec control system is built on a progressive ControlLogic platform by a manufacturer Rockwell Automation. This flexible platform can combine a large number of processors, networks and I/O. Every tunnel is controlled by two main process stations, which are configured as a hot-backup stations with switch-over time less than 100 ms. Both units are equipped by a Logix 5563 modules with 8 MB memory capacity, communication modules and redundant synchronization units for fast data synchronization.

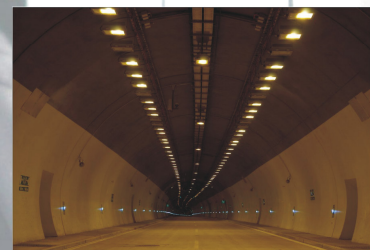
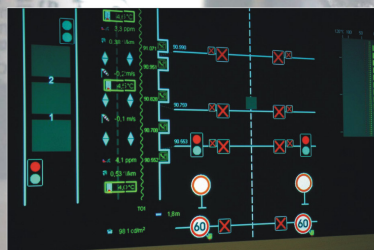


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The control system consist of over 60 binary communications interconnecting about 300 electronic devices, over 6000 binary inputs, over 1000 analog inputs and over 2000 binary outputs. The control system directly controls the distribution of electrical power in tunnels, ventilation, electric fire system, lighting, traffic management, SOS rescue system, camera supervision, evacuation radio, electronic security system etc.



The expansion of the control system for more inputs, outputs and communication modules can be done by the inclusion of another I/O module on the industrial network. Optic fiber cable is used for all communications to ensure the high transfer rate, noise immunity, superior stability and high reliability. The network topology of the complex control system is a combination of redundant star, and the redundant ring to ensure the trouble free operation, easy maintenance and mostly important the secure operation.



Last, but not least, the status and control of the tunnel complex is operated by SCADA (HMI) visualization system build on RSview SE standard. The SCADA system is a client-server oriented. Two redundant servers are used to ensure maximal reliability of operation. The client stations visualize all technological processes in tunnels, including the traffic status. The overall state of the highway section is visualized using large-screen projection wall. Thus, the quick response of the operators in case of emergency is guaranteed.

