A high-speed train, white with blue and yellow accents, is traveling on a track through a forested area. The train is moving towards the viewer. The track is elevated on a gravel bed. The background is a dense forest of tall trees. The sky is clear and blue. A yellow curved line is visible in the top left corner of the image.

MIPRO RAILWAY SOLUTIONS

SAFETY, AVAILABILITY AND EFFICIENCY
FOR RAILWAY SIGNALLING, TRAFFIC
MANAGEMENT AND OPERATIONS

MIPRO

COMPLETE SOLUTIONS FOR THE RAILWAY SECTOR

Mipro provides complete signalling, traffic management and operations control solutions for demanding railway infrastructures including

- main line and low density line networks
- marshalling yards and depots
- traffic management and train operation centres.

Our modular and flexible system solutions can be customised to specific needs. Whether you need to modernise existing railway lines and legacy systems or build a new railway line, our solutions meet the customer's needs and local regulations.

Our railway solutions ensure a cost-efficient way to increase the capacity of passenger and freight networks - without compromising on safety.

Furthermore, Mipro provides services for system lifecycle management and complete project deliveries with safety assessment and verification.



Mipro is renewing the signalling system on the Lääne-Harju track section in Estonia in cooperation with Estonian Railways Ltd.

SAFETY, AVAILABILITY AND EFFICIENCY FOR VARIOUS NEEDS

For high and low density lines we deliver CENELEC SIL4 certified signalling systems including interlocking, wayside elements and level crossings. Our systems provide unique customer fit and connectivity with other manufacturers' systems.

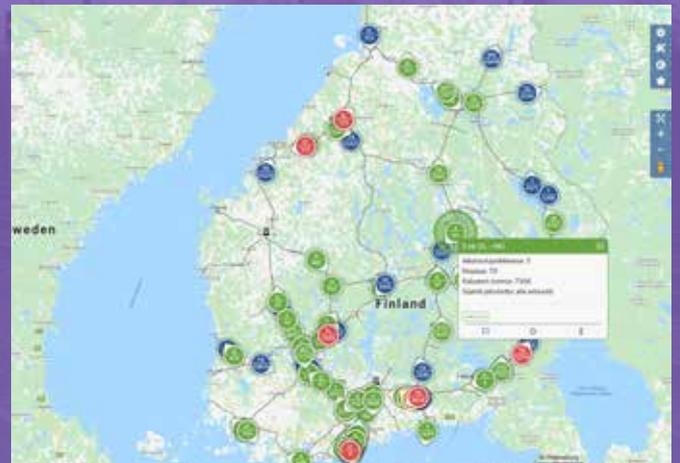
Our flexible (centralised, distributed or mixed) system architecture is also an excellent solution for marshalling yards and depots that require highly automated signalling and control systems including automatic point control and train detection functions.

For traffic control centres we deliver user-friendly traffic management systems developed in close cooperation with traffic controllers to provide high availability and efficient daily operations. All the features of our TMS system are designed to ensure smooth traffic flow and safety of operations.

Versatile collection, analysis and visualisation of data is managed by TMS together with our situational awareness system in all environments.

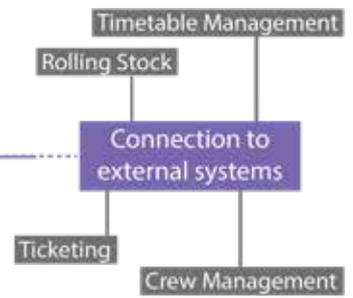


Mipro traffic management system manages Western Finland's remote control (TAKO) in the Viinikka traffic control centre of Finrail Ltd.

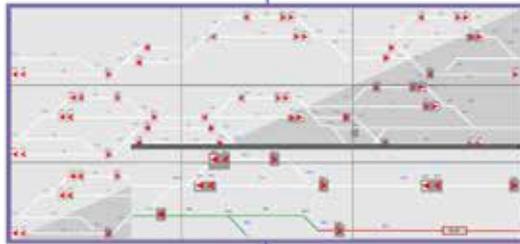
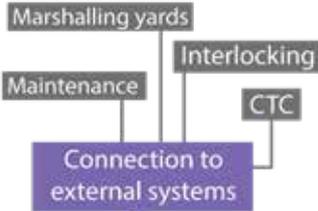


Mipro REGO situational awareness system manages operations in VR Group's operations centre.

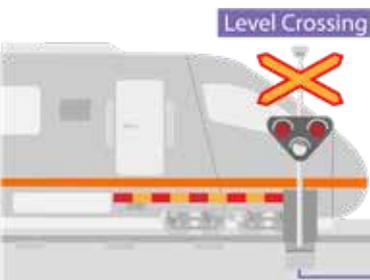
SITUATIONAL AWARENESS



TRAFFIC MANAGEMENT SYSTEM



SIGNALLING SYSTEM

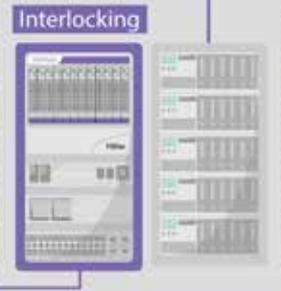


Axle Counter

Balise

Signal

Point Control



INTERLOCKING SYSTEM

Maximum safety and availability

Mipro's computer-based fail-safe interlocking system is designed to control and manage high-frequency and demanding railway control operations. Thanks to its modular, parametric and scalable system architecture it easily adapts to customer-specific requirements and various operating environments.

- Modular design, configuration tools and COTS components allowing fast implementation, later modifications and easy maintenance
- Interoperability and easy integration to external systems
- Redundant 2oo2 system architecture ensuring high availability and efficient use of railway capacity
- Compatibility with ETCS L1&L2 and EULynx.

TRAFFIC MANAGEMENT SYSTEM

Dynamic control environment

Our highly scalable traffic management system ensures reliable and efficient rail traffic flow. It includes automatic functions that enhance daily operations and reduce human errors, e.g. route settings, management of train numbers and conflict situations.

- Scalable and modular system architecture enabling easy maintenance, later modifications and extensions
- Interoperability with different interlocking systems
- Flexible and user specific traffic visualisation
- Versatile features to interface to external systems.

SITUATIONAL AWARENESS SYSTEM

Overall view at a glance

Our situational awareness system, Mipro REGO, provides an overall real-time view of the traffic situation at one glance. The system easily integrates with multiple systems, combining and visualising all the relevant information on the map. Thus, the user can focus on problem solving, not on monitoring.

- Attractive user experience and modular architecture
- More time to react and operate in exceptional situations
- Clear and easily exploitable information to enable better decision making and communication
- Interfaces to various systems
- Key Performance Indicators for safety and efficiency.

PROJECTS AND LIFECYCLE MANAGEMENT

Services to increase the value of the investment

Mipro's project implementation services ensure that project deliveries are completed according to customer requirements and with due regard to all safety aspects. They include project management, system configuration, installation, testing and commissioning services.

Our professional operation and maintenance services are the key to extend the system lifecycle and increase the value of the investment. Our services include user support, configuration and spare part management, updates and modifications and system training to ensure user knowledge and skills.

HUNDREDS OF SUCCESSFUL PROJECTS

Each of our projects is modified and completed according to customer needs and requirements.

Commissioning in 25 phases during 6 weeks with traffic running		
SIL4 Safety Integrity Level interlocking system	69 Points	15 Local permission areas
	62 Main signals	74 Shunting routes

VAINIKKALA MARSHALLING YARD SIGNALLING SYSTEM MODERNISATION

Mipro has renewed the signalling systems of Vainikkala, Niirala, and Kotka Kotolahti-Mussalo marshalling yards in eastern Finland. All these yards are significant border stations and gateways for railway traffic between east and west.

SIL4 Safety Integrity Level interlocking system	166 Signals	36 Centralised points
	7 Traffic places	80 Track kilometres approx.
New combined aspect signals, track equipment and a high number of interfaces		

KOKKOLA-YLVIESKA DOUBLE TRACK SIGNALLING SYSTEM PROJECT

The signalling system is one of the most comprehensive ever built in Finland and it controls the traffic on one of Finland's busiest railway lines where the train speeds exceed 200 km per hour.

VALUE FOR THE CUSTOMER BY MIPRO SOLUTIONS

- Low total cost of ownership
- Efficiency through automation and centralisation
- Availability by modular and redundant system design
- Proven interoperability with other suppliers' systems and equipment
- Maintenance and modifications without traffic disruptions
- Real time visibility and analytics to operations
- Lifelong customer support
- Proactive and preventive lifecycle planning.

MIPRO

Mipro is specialised in railway and industrial systems. Our systems are used for safety management in railway and metro services and industry processes as well as for controlling processes in water and energy management. Mipro is headquartered in Mikkeli, Finland, with offices in Espoo, Oulu and Tallinn, Estonia.

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Our operations are managed in accordance with an integrated management system certified according to ISO 9001 standard, and an environmental system certified according to ISO 14001.