

MIPRO METRO SOLUTIONS

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

MIPRO

COMPLETE SOLUTIONS FOR THE METRO SECTOR

Mipro provides complete signalling, traffic and operations control solutions for demanding metro networks including lines, operation centres and depots.

We specialise in designing, installing and maintaining systems for the control and management of high-frequency rail operations. The modular and flexible architecture of our systems enables various traffic and operation modes, future expansions and modifications, as well as easy integration into existing infrastructures.

Mipro's metro solutions ensure a cost-efficient way to increase the capacity of networks according to current requirements - without compromising on safety.

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



SAFETY, AVAILABILITY AND EFFICIENCY FOR VARIOUS NEEDS

For metro lines we deliver CENELEC SIL4 certified interlocking systems that enable centralised or distributed architecture solutions according to infrastructure requirements. Our fully redundant system ensures highest availability and safety.

Our flexible (centralised, distributed or mixed) system architecture is also an excellent solution for 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 ATS systems developed in close cooperation with traffic controllers to provide high availability and efficient daily operations. All the features of our ATS system are designed to ensure smooth traffic flow and safety of operations.

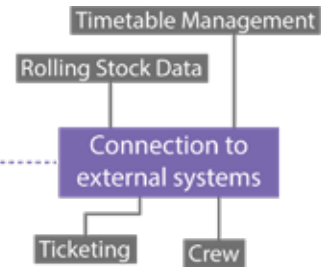
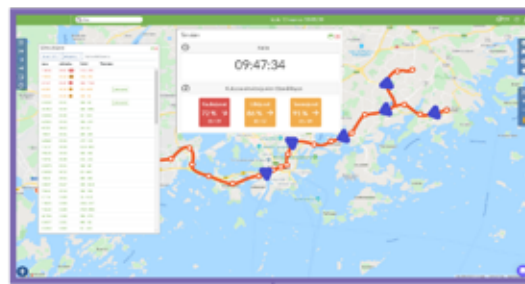
Versatile collection, analysis and visualisation of data is managed by ATS together with our situational awareness system in all environments.



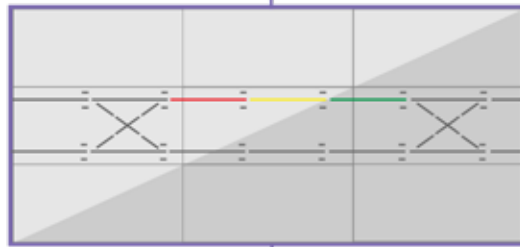
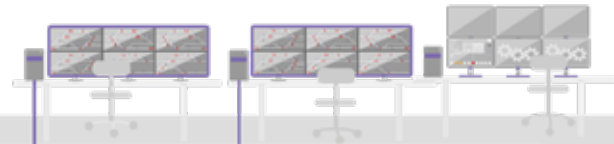
Mipro's ATS in the Herttoniemi control centre in Helsinki manages the metro traffic in the Finnish capital area.



SITUATIONAL AWARENESS



AUTOMATIC TRAIN SUPERVISION



SIGNALLING SYSTEM



INTERLOCKING SYSTEM

Maximum safety and availability

Mipro's computer-based fail-safe interlocking system is developed to control and manage high-frequency and demanding rail 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 with other manufacturers' systems, e.g. interlocking and ATS systems
- Redundant 2oo2 system architecture ensuring high availability and efficient use of rail capacity.

ATS AUTOMATIC TRAIN SUPERVISION

Traffic flow and efficiency

Our highly scalable ATS automatic train supervision and control 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
- Function modes for specific traffic situations
- 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.

MIPRO'S INTERLOCKING SYSTEM CONTROLS THE ENTIRE METRO LINE IN THE HELSINKI CAPITAL AREA

SIL4 Safety Integrity Level interlocking system	158 Signals	35 Points	SIL4 Safety Integrity Level interlocking system	233 Main signals	60 Distant signals
	8 New stations	14 Kilometres of line in two shafts		155 Other signals	154 Centralised points
The highest permissible speed 80 km/h. 170 000 passengers every day.			21 kilometres with 17 stations. Commissioned during a break of one weekend.		

WEST METRO SIGNALLING SYSTEM PROJECT

HELSINKI METRO SIGNALLING SYSTEM MODERNISATION

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 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.