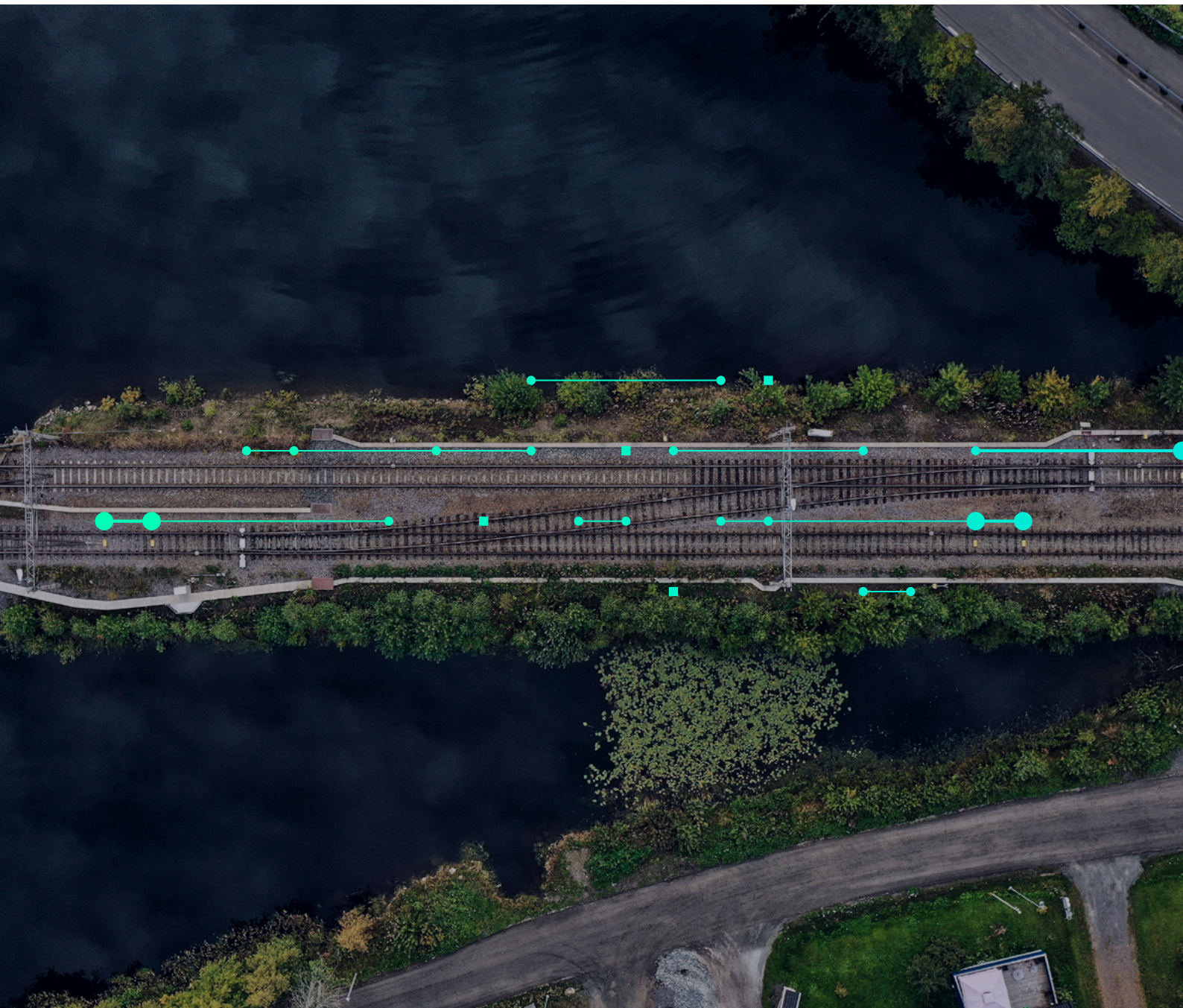


SETTING THE STANDARD IN TRAIN PROTECTION

Tranguard Mirel RM



Seamless integration of safety and functionality at SIL4

The Trainguard Mirel RM integrated on-board system facilitates critical vehicle-driver interface operations, ensuring operational safety and reliability in rail transport. Its modular architecture enables seamless scalability through an open system design. System functionality can be extensively customized through multiple configuration options and modifications, allowing precise adaptation to specific operational requirements and infrastructure environments.

Secure core, flexible extensions

The Trainguard Mirel RM on-board system implements the functional properties of the safety device. The entire system consists of a closed secure core and application-variable extension modules. It combines the functions of a registration speedometer, an on-board recording device and a security system for monitoring vigilance. The safety functions reach the SIL4 safety integrity level.

In order to achieve the level of safety, Trainguard Mirel RM performs continuous self-diagnostics and a functional test to check the correct execution of system functions. It can be installed on vehicles of all tractions.

Primary functions of Trainguard Mirel RM

- Speed measurement and indication
- Vigilance control
- Maximum speed control
- Data registration
- Control of safety outputs
- System intervention
- Providing data to the communication interface

Secondary functions of Trainguard Mirel RM

(using expansion modules)

- Registration of variable measured technological data
- Communication gateway function for data from systems installed on HDV
- Time synchronization and locomotive location registration via data from the GPS system
- Control of technological binary outputs

Experience High Safety Standards and Modularity

25+

years of the Trainguard Mirel system in operation

5000+

Trainguard Mirel systems in Europe

98 %

of all delivered products are complaint-free



Trainguard Mirel RM

The integrated on-board system can work in four modes:

1. POS – Shunting mode
2. PRE – Operating mode
3. PRA – Work mode
4. ZAV – Dead-in-tow mode

The benefits in brief

- Variable safety level SIL4/SILO
- Safe binary outputs
- Speed indication with SIL2
- Scalability and modularity

Continuous communication and permanent safety checks

Central Unit provides safety, operational and system functions of the Trainguard Mirel RM integrated on-board system.

Without the need for expansion modules, it can be delivered in a compact version, the so-called BOXTUG or BOXKOG. Registration of operational and technological data can be implemented as part of a system meeting the requirements of the EN 62625 standard.

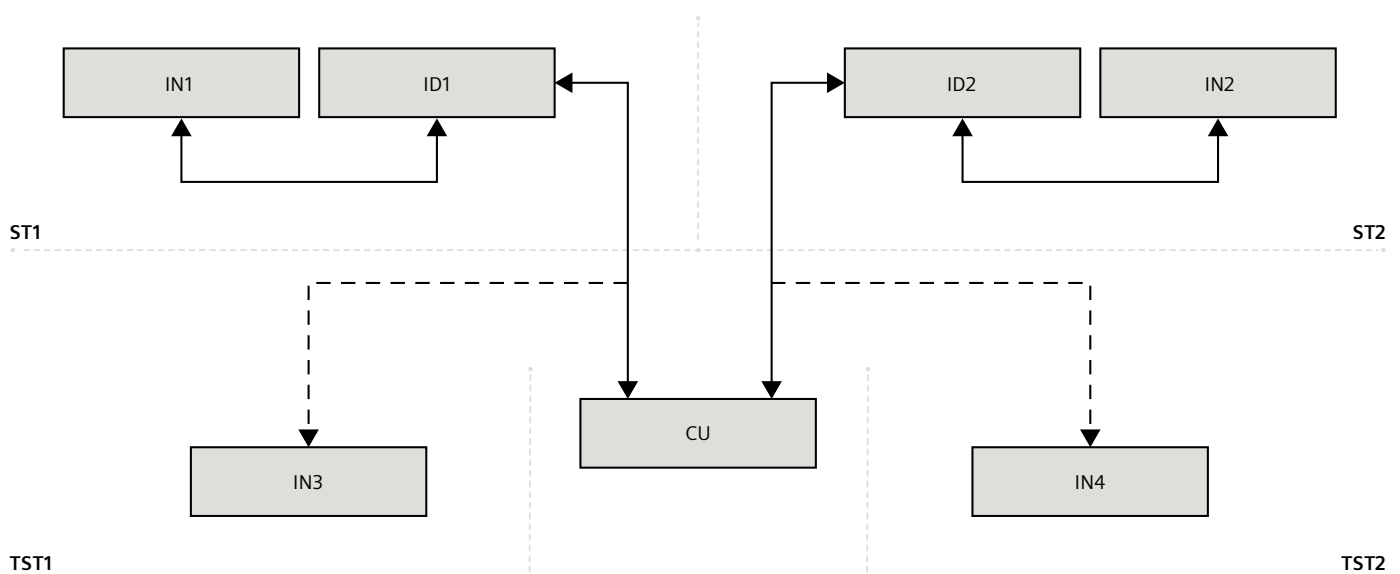
The most important functions of the central unit: measurement of speed, covered distance and direction of movement, driver's vigilance control, maximum speed control, data registration, emergency vehicle stop and system intervention, collection and registration of operational and technological data, communication with connected cooperating devices.

Basic system composition of the Trainguard Mirel RM

The complete set of the Trainguard Mirel RM system includes the following devices:

Central Unit (CU) – 1, Indication Unit (IN) – max. 4, Identification Unit (ID) – max. 2

Cabin 1 (ST1), Cabin 2 (ST2), Technological cabin 1 (STS1), Technological cabin 2 (STS2)



Measures, monitors, informs for safety in rail transport

The complete Trainguard Mirel RM system consists of a Central Unit in combination with an indication and identification unit. This assembly cooperates with selected devices.

Central Unit

The central unit performs continuous measurement of instantaneous speed and distance traveled, monitors driver's vigilance, and processes all data necessary for safe driving operations.

Indication Unit

Located in the driver's cab or vehicle's technological cab, this unit provides visualization of operational data. It displays actual travel speed, maximum speed limits, and pre-set vehicle speeds. Depending on version and modification, it processes operator commands and indicates movement speed with SIL2 safety integrity level.

Identification Unit

Manages interface for train driver, rail vehicle, and train identification data entry. Displays detailed operational and diagnostic data including date, time, covered distance, speed of movement, GPS coordinates of vehicle position, and related parameters.

Cooperative devices

The Trainguard Mirel RM integrated on-board system interfaces with various systems, devices, and vehicle elements. These include both essential operational components and optional elements based on configuration requirements.

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Learn more:

