

MMI 10

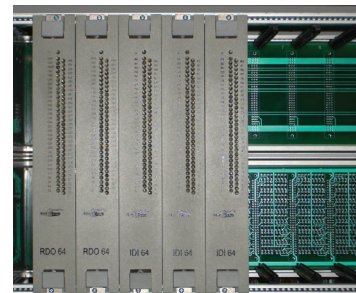
RAILWAY SAFETY HMI

MMI 10 is a safety HMI (Human Machine Interface) system for administrating, monitoring and controlling one or more railroad interlocking devices. It provides a graphics-based visualization that makes railroad standards compliant with user interface, safe and easy to use at the same time. It's highly customizable and available in different languages.



Data acquisition & distribution unit

MMI 10 includes data acquisition & distribution unit for handling both relay and electronic interlocking devices. This unit is based on Cortex M3 MCU and it's been made in a way that guarantees safety and reliability. It's simple and robust, virtually maintenance free. Up to 2560 digital I/O are provided for monitoring and controlling relay-based interlocking devices.



Data communication

The MMI 10 exchanges data with a data acquisition & distribution unit by a LAN or RS485 communication channel. A sophisticated communication protocol ensures high safety and integrity of both acquired and sent data.

Information reliability

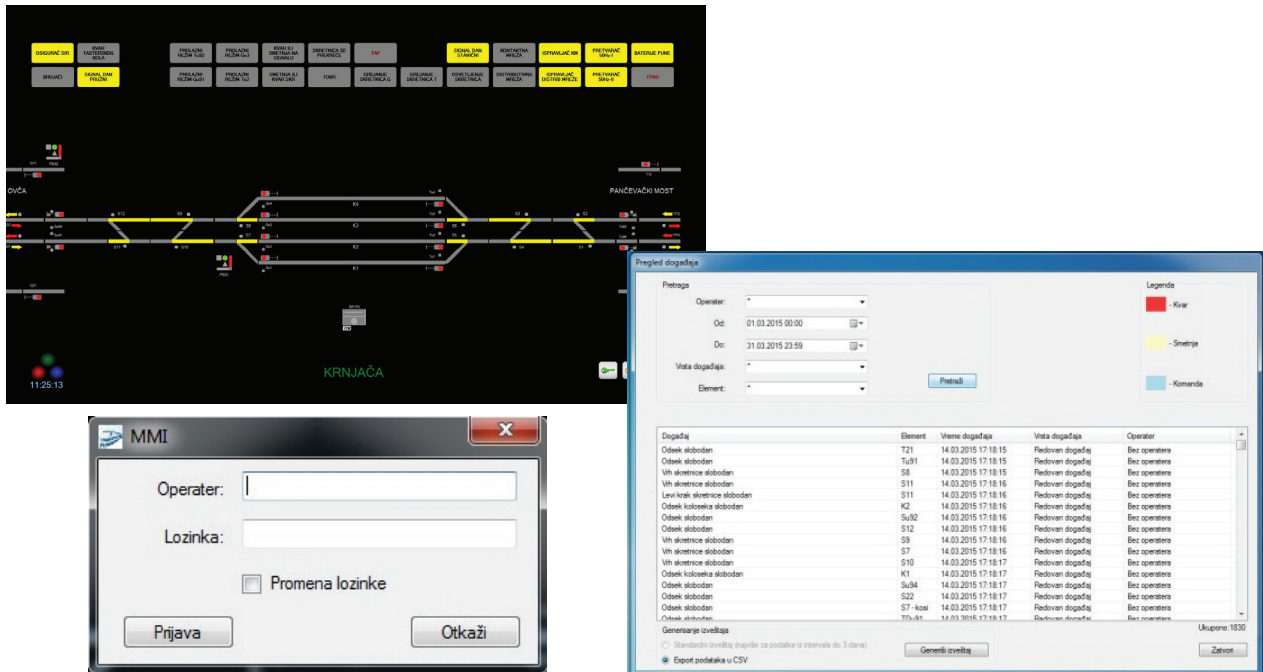
Several control mechanisms are applied to make sure that all displayed information is fresh and correctly represented. Possible faults, like monitor malfunctioning, dead or frozen pixels, etc., cannot jeopardize the system safety.

Operators

Only an authorized operator can handle the system, and only up to a certain level, according to his privileges. Each operator's action is being audited and logged permanently. A complete and powerful operator maintenance module is included in the system.

Data logging & reporting

Every event, command, fault or a failure is being shown as it occurs in a separate textual screen as well. An operator can browse through their history, as deep as needed, because all of them are permanently archived in the database. Based on the archived data and the applied user's criteria, number of data views and reports can be generated.



The image displays the MMI 10 system interface. On the left, a railway signal diagram is shown with various signal elements and status indicators. The top of the interface features a menu bar with numerous options. Below the diagram, a login window is visible, prompting for an operator name and password, with a checkbox for 'Promena lozinke' (Change password) and buttons for 'Prijava' (Login) and 'Otkaži' (Cancel).

On the right, a 'Pregled događaja' (Event Log) window is shown. It includes search filters for 'Operator', 'Od' (From), 'Do' (To), 'Vrsta događaja' (Event type), and 'Element'. A legend indicates that red represents 'Kvar' (Fault), yellow represents 'Smetnja' (Disturbance), and blue represents 'Komanda' (Command). The main table lists events with columns for 'Događaj' (Event), 'Element', 'Vreme događaja' (Event time), 'Vrsta događaja' (Event type), and 'Operator'. The table contains multiple rows of event data, including 'Odsjek slobodan' (Section free) and 'Odsjek kolosekta slobodan' (Track section free) events.

MMI 10 system provides :

- high comfort for the operators
- integration of relay and electronic signal-safety devices into modern Centralized Traffic Control systems
- effective diagnostic and reporting of all events, commands, failures and data archiving



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