Urban mobility and infrastructure

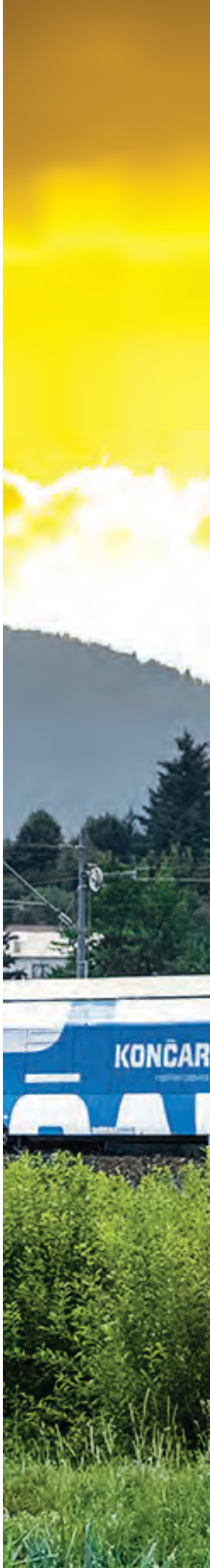
KONČAR

Inspired by challenge

Born to roll

KONČAR has been driving innovation in rail transport since 1949, beginning with the development of the electric traction motor for trams. Over 70 years of continuous operation and relentless innovation have firmly established KONČAR as a leader in the design, development, and manufacture of advanced rail transport technology.

KONČAR today stands as a provider of comprehensive rail solutions, offering a full suite of products and services ranging from the development and design to the manufacturing, retrofitting, and maintenance of rolling stock tailored for railway, industrial, regional, and urban-suburban applications. Our diverse portfolio includes electric locomotives, Battery Multiple Units (BMU), Battery Electric Multiple Units (BEMU), Electric Multiple Units (EMU), Diesel Multiple Units (DMU), low-floor trams and special vehicles. Beyond rolling stock, our expertise extends to the design, development, and manufacture of critical components and subsystems, encompassing power and instrument transformers, control and communication systems, static voltage converters for both main and auxiliary drives, advanced control and signalling devices, traction motors, and essential structural components such as car bodies and bogie frames.




KONČAR
HŽPP

Our solutions include

- **Rail and tram systems and components**
- **Fleet charging infrastructure systems**
- **Cold ironing and port electrification systems**
- **Smart city solutions**

Rolling stock

Our state-of-the-art solutions are the result of proprietary knowledge and development of our engineers and skilled professionals.

EMU for efficient commuter transit

Low-floor tram in service, Liepāja, Latvia

Trains

Our low-floor trains combine advanced construction, innovative design, and high-performance features to deliver exceptional energy efficiency and superior passenger comfort, making them the ideal solution for both regional and urban-suburban transit.

Trams

Our 100% low-floor trams provide a modern, functional solution for public transportation, showcasing unique design and exceptional technical specifications.

High-precision measurement train

Modernized locomotive

Special vehicles

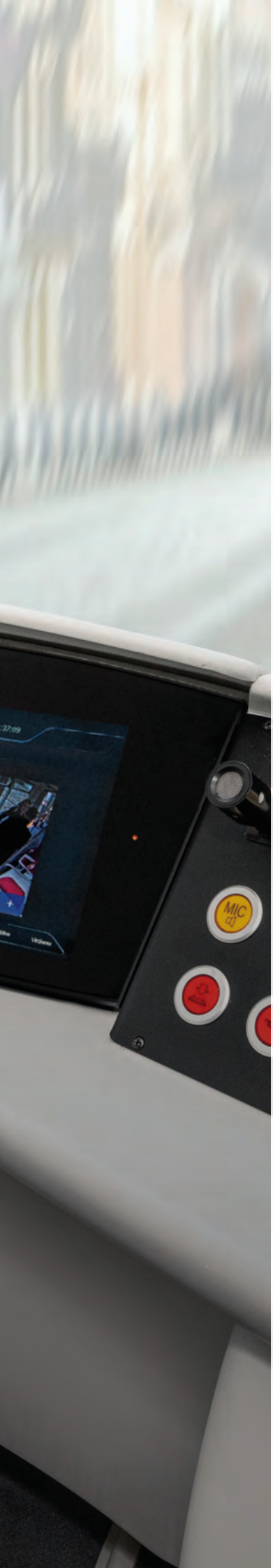
Measurement train is self-propelled vehicle designed to monitor, measure, and record track conditions with precision. Built on the reliable platform of our current electric and diesel-electric trains, this high-floor vehicle is powered by a diesel engine and can reach speeds of up to 140 km/h on both electrified and non-electrified tracks.

Electric locomotives

At KONČAR, we have been modernizing electric locomotives for decades, bringing them to the forefront of technological advancement. Our expertise in modernization, including advanced thyristorization, has earned us the trust of numerous operators across Southeast Europe.

Rolling stock **control systems**

For nearly three decades, KONČAR has been a trusted partner in addressing the complexities of control systems, electronics, communication, and ICT within the railway industry. Our focus on research, development, and innovation (RD&I) enables us to create highly customized solutions tailored to meet the distinct needs of each customer. We are deeply committed to delivering the most effective solutions, ensuring our customers benefit from unparalleled efficiency and reliability.



Train Control and Management Systems (TCMS) & Energy Metering Systems (EMS) for electric rolling stock

KonHMI 101A
Human-Machine Interface

KonHMI 102A
Human-Machine Interface

KonHMI 103A
Human-Machine Interface

VCU
Vehicle Control Unit

KonEMS
Energy Metering System

Rolling stock **converters**

Propulsion converters for electric and diesel-electric trains, trams and locomotives.

KONTRAC GN720MS/BS
all in one propulsion and auxiliary converter for battery and electric-battery trains

KONTRAC GP550AC
propulsion converter for EMUs

KONTRAC GP550DE
propulsion and auxiliary converter for DEMUs

KONTRAC PN90DC
auxiliary converter for multi-system trains

KONTRAC GP170DC
propulsion converter for trams

Traction **motors**

Asynchronous squirrel-cage motors, insulation class index 200.

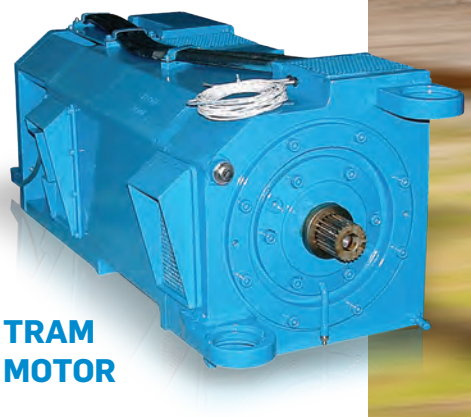
Rated voltage up to **1000 V**

Rated speed (tram) up to **4580 rpm**

Rated power from **65 to 525 kW**

Rated speed (EMU train) up to **5280 rpm**

EMU TRAIN MOTOR



TRAM MOTOR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Rail **infrastructure**

Drawing on over 50 years of industry experience, KONČAR has consistently been a reliable leader in delivering fully integrated turn-key railway projects, from design to commissioning. Our capabilities extend to the development of electric traction power supply systems, as well as advanced signalling and safety systems. Additionally, we specialize in the design, development, and manufacturing of critical infrastructure components and subsystems, including power and instrument transformers, AC and DC switchgear, control and communication systems, level crossings, static voltage converters for both main and auxiliary drives, monitoring equipment, protection systems, and signalling devices.

Electric traction

- Electric traction substations
- Sectioning stations
- Rectifier stations
- Reactive power compensation plants
- Local and remote control
- Coach pre-heating devices


Vlakom u München

Signalling and safety systems

- Level crossing protection and signalling devices
  - Electronic level crossing device KLC3
  - Safety human-to-machine interface
  - SafeHMI and safety input-output devices - SafeI/O
  - Electrohydraulic drive for half-barriers
- Power supply for safety and signalling devices
- Track circuits for control of insulated and short section occupancy

KLC3 – KONČAR Level Crossing 3rd generation

Hydraulic half-barrier

Safety human-to-machine interface

Components and systems for rail infrastructure

Point heating system

- Power supply from overhead contact line or distributive transformer station
- IT protection system
- Manual or automatic operating mode controlled by weather station
- Local and remote control and signalization
- Event recorder

Point heating system power supply and control cabinet

Rail infrastructure equipment

- Power transformers
- Circuit breakers
- Disconnectors
- Instrument transformers
- UPS
- Control and protection cubicles

Single-phase power transformer

Reactive power compensator

DC traction power supply systems

- Compact DC switchgear with integrated rectifier
- Nominal voltage of 750 V, nominal busbar current up to 4000 A
- Metal-enclosed withdrawable feeder 2600 A
- Twelve-pulse diode rectifier up to 3000 A

Dry-type rectifier transformer

Twelve-pulse diode rectifier

Contact network equipment

Dalekovod specializes in providing comprehensive solutions for the design, construction, manufacturing, and installation of contact network equipment, supporting:

- **Electrification of new railway lines**
- **Replacement equipment during maintenance of existing contact networks**

Our contact network equipment is meticulously engineered to meet the rigorous standards and recommendations set by leading European countries, ensuring top-tier compliance and performance.

Dalekovod has also developed specialized contact network equipment specifically for the electrification of railway lines operating on single-phase 25 kV 50 Hz systems, addressing the unique demands of modern rail infrastructure.

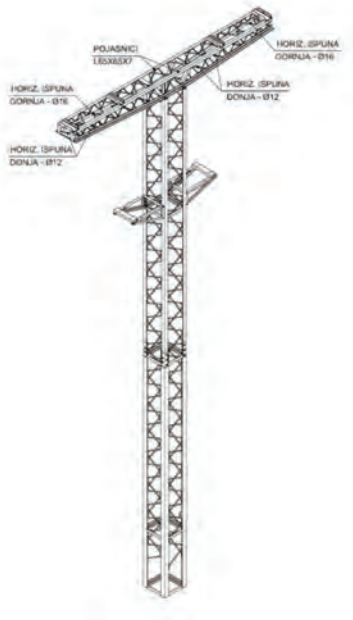
DALEKOVOD
KONČAR GROUP MEMBER

Railway infrastructure construction

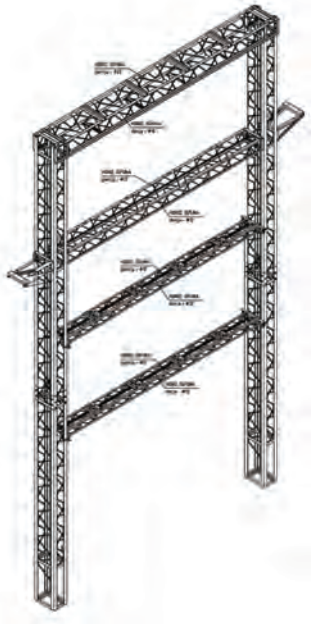
- Overhead catenary system
- Load bearing steel structures
- Railroad and railway station lighting
- Noise protection barriers
- Cable laying and relocation

Overhead catenary system hardware

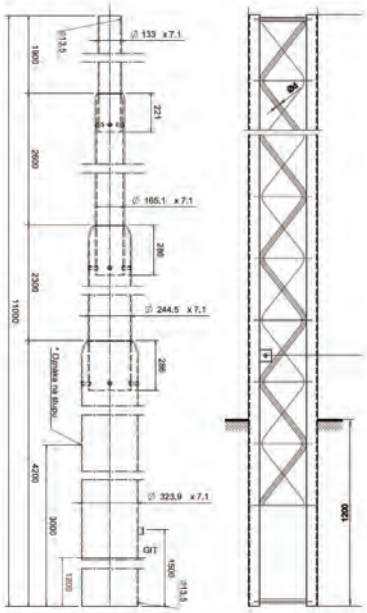
Load bearing steel structures and fasteners



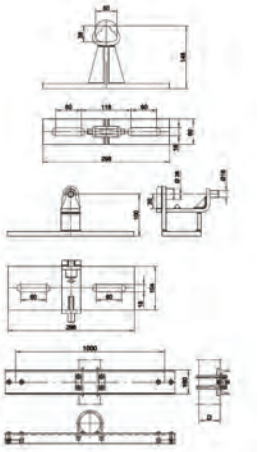
Transversal tie towers



Customized portals



Tubular and lattice poles



Fasteners and jointing equipment

Cantilever solutions

- Cantilever assemblies for light, medium, heavy and very heavy loads
- Cantilever assemblies for single or double contact wires
- Cantilever assemblies with and without bracket support
- Cantilevers for non-active lines
- Tension aluminum cantilevers
- Compression aluminum cantilevers
- Tunnel cantilevers

Battery charger for batteries onboard rail vehicles

The *KonCharge 1000* battery charger is a power converter specifically designed for charging batteries onboard rail vehicles, including both full battery and hybrid powertrain systems. It operates with an input voltage of 10(20) kV and is capable of parallel charging two batteries, each with a power rating of up to 500 kW.

The system consists of two distinct elements: a container housing the equipment required for energy conversion and a connection cabinet (Satellite) featuring a user interface, necessary safety features and connection cables for linking to the rail vehicle battery system. The location is outside of the rail corridor, while the connection cabinet is positioned within it.

Battery Multiple Unit
(BMU)

Designed for passenger transport on non-electrified railway lines, using onboard propulsion batteries charged exclusively through stable energy connections.

These environmentally friendly trains are quieter and more efficient, suitable for diverse routes, with autonomy based on battery capacity and speed.
Alongside their environmental benefits, our battery trains can lower maintenance and operational costs. With cutting-edge technology and efficiency, these trains embody the future of sustainable rail transport.

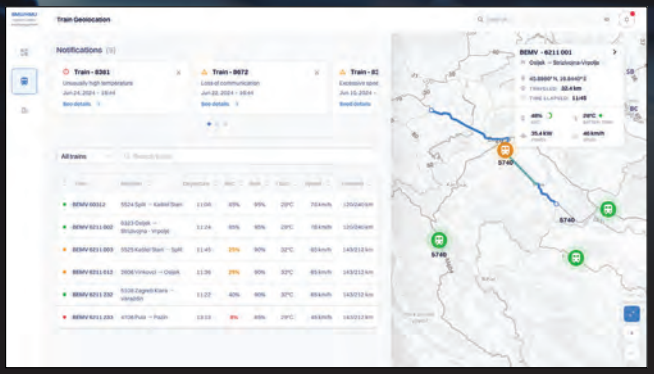
Monitoring
Battery trains and charging stations

Our advanced monitoring system ensures experts to have real-time, accurate insights into the status and operational performance of battery trains and charging stations.

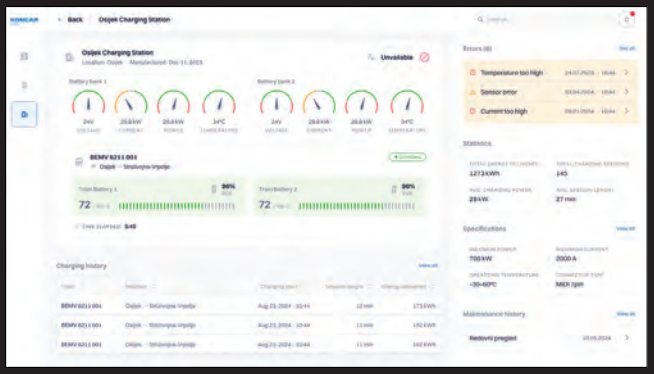
Key functionalities include:

- **Train monitoring:** Comprehensive geolocation tracking, battery status updates, and operational data provide a clear and current view of fleet conditions.
- **Charging analysis:** In-depth data on charging sessions and energy consumption allow optimized planning, efficient maintenance, and enhanced operational management.
- **Charging station monitoring:** Centralized access to all critical operational parameters of charging stations simplifies the process of monitoring and managing station performance.

This system empowers experts to make data-driven decisions, ensuring the reliability and efficiency of the railway network.



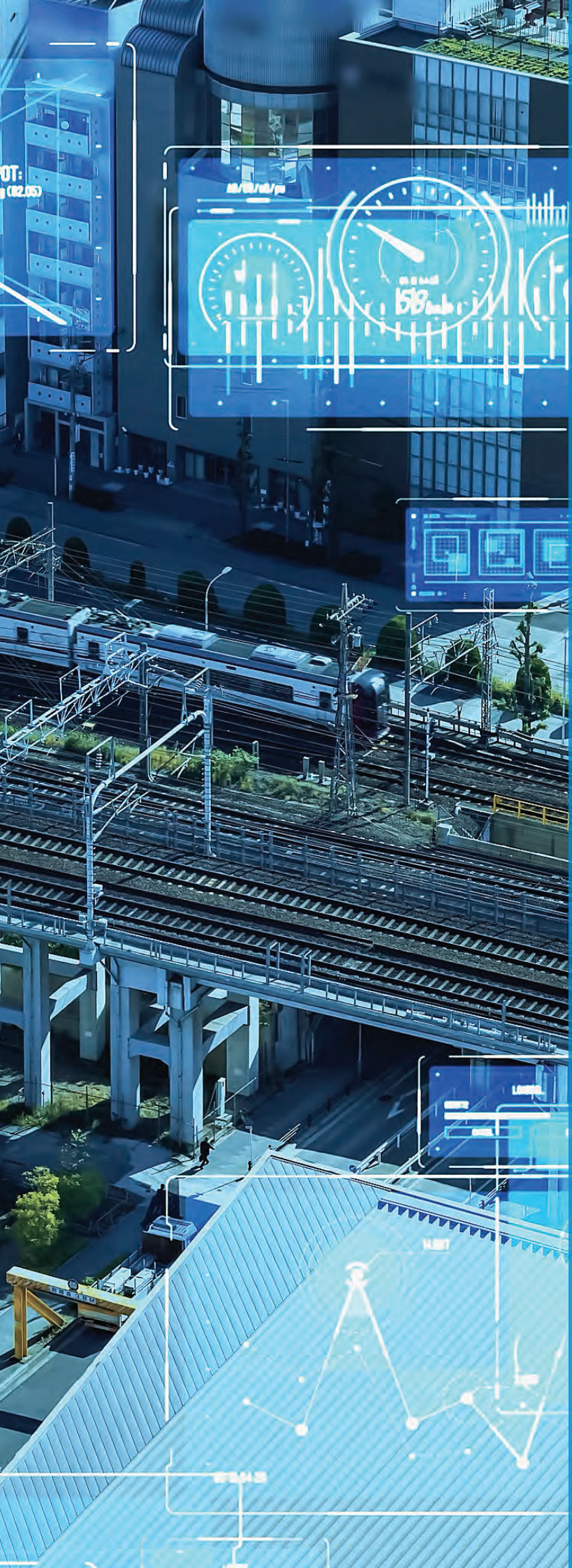
BMU network geopanel



Charging station specifics

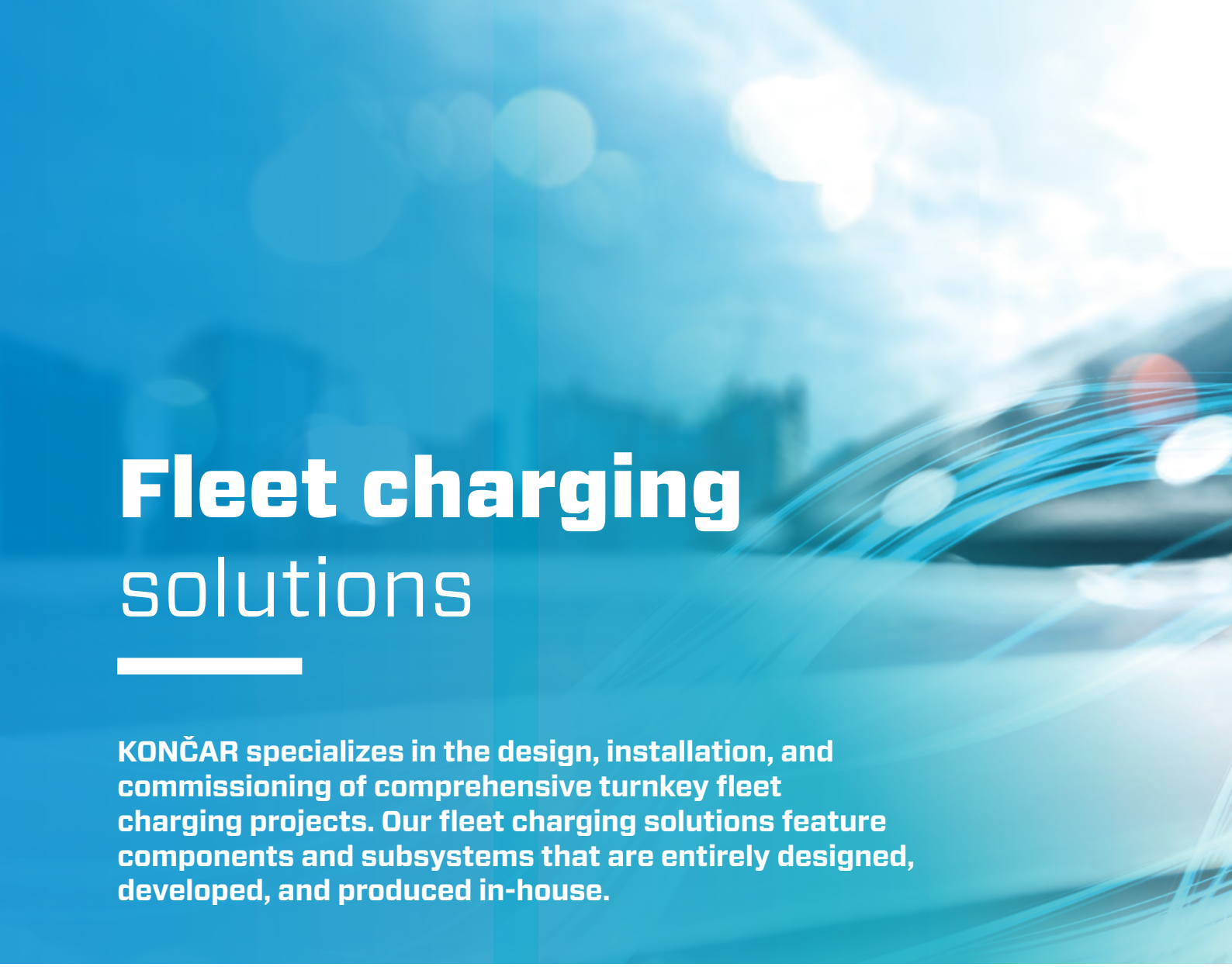
BMU specifics

Monitoring systems and expert services



Dispatch centers

- SCADA real-time monitoring and control system
- Electric traction power supply control and monitoring
- Sectioning control and monitoring
- Control and monitoring of railway stations contact line disconnectors
- Control and monitoring of switch heating power supply disconnectors
- Telecommunication network monitoring



Fleet charging solutions

KONČAR specializes in the design, installation, and commissioning of comprehensive turnkey fleet charging projects. Our fleet charging solutions feature components and subsystems that are entirely designed, developed, and produced in-house.

Project and Design
- Concept design
- Approvals
- Final design

Transformer stations
- Transformer design and manufacturing
- Construction and assembly
- Commissioning

Equipment
- Charging stations
- Power units
- Single and double satellites
- Installation and commissioning
- Service

CPMS – Charging Point Management System
- Asset management: monitoring, remote control, and maintenance of charging assets
- Energy management: dynamic, centralized charging power management
- Customer, partner, and charging station owner management
- Cost calculation and optimization with partners
- Integration with roaming platforms
- Analytics and reports
- Charging reservation capabilities
- User portal and mobile app: provides access to available chargers
- Integration with third-party systems
- Compliance with Safety Standards: IEC 62443, IEC 62351

Single and double satellite

Station charger

Power unit

Cold ironing – port electrification

Leveraging KONČAR's extensive expertise in power conversion systems, medium and high voltage switchgear, and transformers of various capacities, we provide comprehensive solutions for port electrification.

We provide:

- Feasibility analysis, site survey, and detailed design
- Power grid connection, power conversion system (transformer, converter, cooling and firefighting system) and cable handling system with connection interface
- Standard or containerized solution
- Compliance with IEC 80005-1 standards

Smart city and microgrid solutions

Leveraging KONČAR's extensive expertise in digital solutions and energy infrastructure, we provide clients with scalable integration options for the control and management of urban systems.

Our IIoT platform and Proza SCADA offers a comprehensive suite of capabilities, including:

- Energy management
- Charge point management
- Energy efficiency monitoring, consumption reading and tracking, and loss detection
- Real-time control, analysis, reporting, and alarms
- Monitoring of air quality, noise levels, parking, and public lighting

We deliver end-to-end solutions in urban mobility and infrastructure, providing customers with the necessary hardware, software, and system integration to enable advanced microgrid functionalities, including:

- Scalable integration of renewable energy sources
- Operation in grid-connected and island modes
- Consumer infrastructure for industry, fleet charging, and urban systems
- Provision of ancillary services
- Spinning reserve capabilities
- Support for energy cooperatives
- Integration with electricity markets
- Prediction of energy production and consumption

KONČAR

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