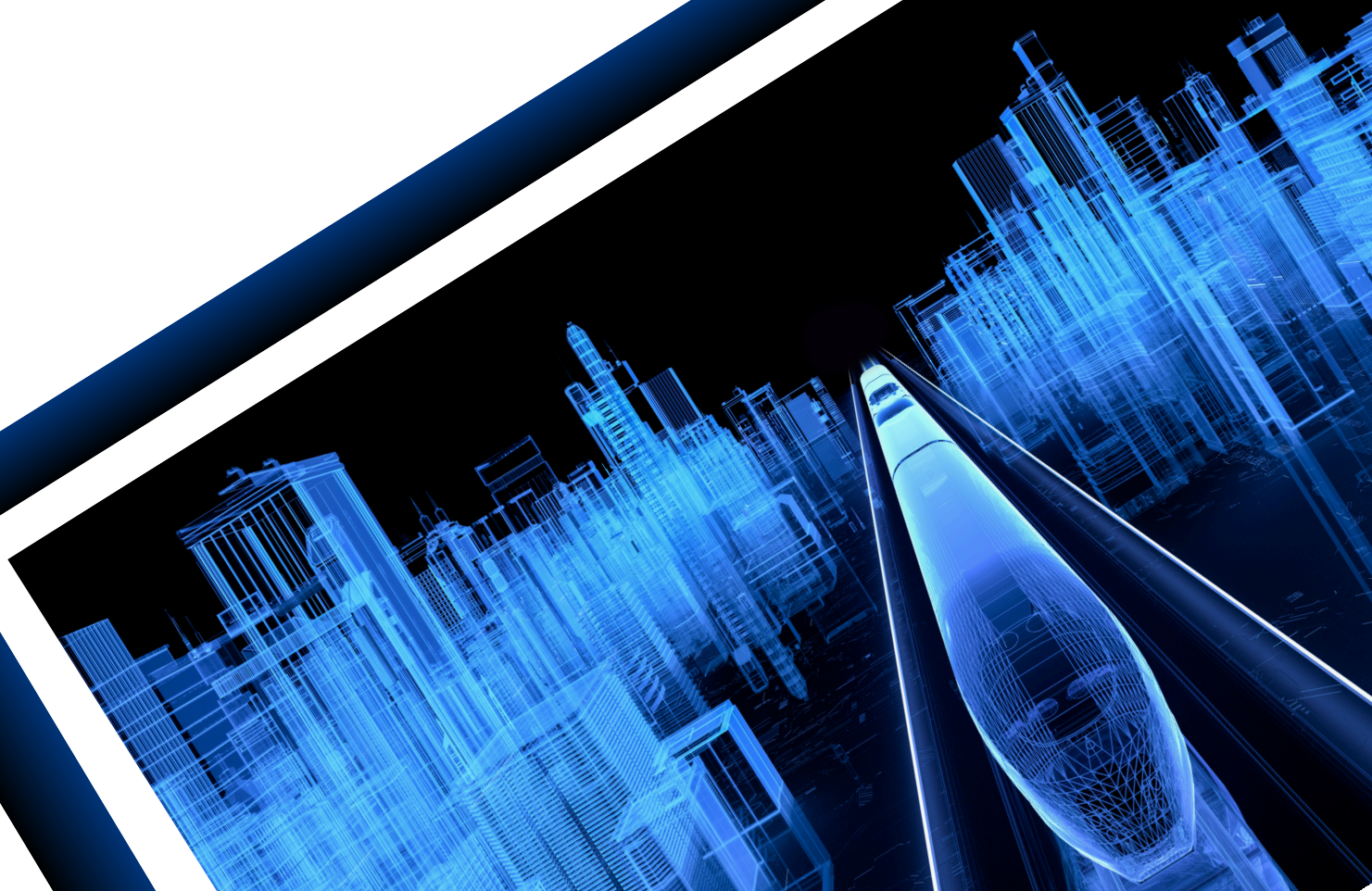


EKE

Train Modernisation and Refurbishment

Smarter trains. Better future.



TRAIN MODERNISATION AND REFURBISHMENT

CHOOSE EKE-TRAINNET® FOR A SMARTER, SAFER, AND MORE RELIABLE UPGRADE. SEAMLESSLY INTEGRATE NEW TECHNOLOGIES WITH EXISTING SYSTEMS USING ITS OPEN, MODULAR DESIGN.



WHAT IS TRAIN MODERNISATION OR REFURBISHMENT?

Train modernisation or refurbishment upgrades trains to improve performance, safety, comfort, and efficiency. It integrates new technologies, and implements advanced safety features. This extends train lifespan, reduces costs, and ensures compliance with current standards, enhancing the experience for passengers and operators.



WHY CHOOSE EKE?

With nearly 40 years of expertise in train automation, system integration, and onboard communications, EKE has modernised/refurbished over 1,200 coaches across multiple countries, earning the trust and loyalty of our returning customers.

01

OPEN ARCHITECTURE

The open architecture of the Train Control and Management System offers flexibility and interoperability, integrating technologies from different partners. This is crucial for modernising/refurbishing trains with both legacy and modern systems. It adapts to various requirements and configurations, minimising integration challenges. This facilitates smoother project implementation.

02

MODERNISATION/REFURBISHMENT PRE-STUDY

Many customers struggle to understand existing systems, complicating fleet modernisation/refurbishment decisions. EKE mitigates this with a mandatory pre-study; a crucial step to providing reasonably priced proposals. Our TCMS engineering ensures compatibility between old and new components, reducing costs by retaining well-functioning parts and avoiding complete replacements.

03

RANGE OF PRODUCTS AND SOLUTIONS

EKE-Trainnet®'s products enhance train capabilities, safety, and condition-based monitoring. This reduces maintenance costs and improves passenger and crew safety. Upgrading during modernisation/refurbishment is cost-efficient, replacing outdated systems. This ensures compliance with modern SIL 2 safety levels. It also mitigates risks associated with aging systems.



Smarter trains. Better future.

WHAT DO WE OFFER?

EKE-Trainnet® integrates all train communication and safety systems, crucial for complex modernisation and refurbishment projects with many subsystems. Explore our wide range of EKE-Trainnet® products for your project needs.

TRAIN CONTROL AND MANAGEMENT SYSTEM

EKE-Trainnet® integrates all train communication and safety systems, crucial for complex modernisation and refurbishment projects with many subsystems. Our wide portfolio includes:

- Train and vehicle bus
- Gateways: WTB, MVB, CAN Ethernet, serial links
- Event recorders
- Vehicle control units
- Remote I/O systems

SIL SAFETY APPLICATIONS

At EKE-Electronics, we excel in developing SIL 2 systems across diverse safety functions, following strict standards (EN50126/50128/50129). With our proven track record and rigorous practices, we deliver unmatched reliability in safety-critical solutions. Examples of applications developed include:

- Automatic selective door operation
- Hot axle box detection
- Lateral acceleration monitoring
- Vigilance control system
- Examples of other applications developed: Fire detection sub-system monitoring, brake pipe pressure monitoring, train speed and distance monitoring, supervision of traction enabling, supervision of passenger alarm activation

CONDITION BASED MONITORING

SmartVision is EKE-Electronics' condition-based and predictive maintenance platform, allowing convenient fleet health monitoring via a browser-based interface. Our Monitoring as a Service feature enables automated fleet monitoring regardless of train manufacturers.

- Remote diagnostics with TCMS data
- Condition-based monitoring with TCMS data
- Condition-based monitoring with additional sensors

All EKE-Trainnet® TCMS products can be programmed using our Software Development Environment Powered by CODESYS®, the industry-leading IEC 61131-3 suite. Effortlessly create, analyse, simulate, and commission applications for maximum efficiency and reliability. Our platform streamlines development, ensuring focus on automation goals, with comprehensive support provided for success in the railway industry.

HOW DO WE WORK?

We offer a flexible business model tailored to each customer's unique capabilities and resources. Our customised solutions provide the optimal balance of support and independence for train modernisation and refurbishment projects.



TURNKEY PROJECTS

We are responsible for the complete architecture design, software implementation, and commissioning of the first trainset.



DELIVERY PROJECTS

Standard EKE-Trainnet® platform, enabling independent configuration and programming of application software using our Software Development Environment Powered by CODESYS®.



SOLUTION PROJECTS

Specific solutions and applications are delivered to customers to solve a particular problem or challenge, meeting requirements specified by the market or the customers.



EKE-Trainnet® System



EKE-Trainnet® Redundant System

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