SYSGO
EMBEDDING INNOVATIONS

Railway Solutions
Safe & Secure Embedded Software

EN 50128
up to SIL 4

Common Criteria
EAL 5+

Advanced Transportation Systems

Connected, Protected, Certifiable

In the rapidly evolving Railway industry, the demand for **reliable**, **safe**, and **secure software solutions** is paramount. SYSGO offers cutting-edge real-time operating systems (RTOS) and hypervisor technologies tailored for the embedded market. Since 1991, SYSGO has grown to become Europe's premier provider of certifiable RTOS, with a strong focus on **Safety & Security** in Railway and Signalling applications.

PikeOS, our certified flagship product, ensures safe and secure operations in critical applications.

Use Cases

- **Train Control Systems:** Facilitating flexible and scalable platforms that integrate heterogeneous functions and legacy applications, ensuring independence from underlying hardware architectures
- **Wayside Communication:** Enabling critical, performance, and passenger communications through secure and reliable gateways, essential for autonomous operations and advanced train control systems
- **Driver Display Systems:** Supporting complex, multi-function displays that integrate Safety-critical and non-critical functions, enhancing the driver's interface and operational efficiency

→ www.sysgo.com/railway

Certifications and Standards

Ensuring Safety, Security, and compliance is at the core of our development process. Our solutions are rigorously designed to meet and exceed the demands of global standards in critical domains. Key certifications and standards we adhere to include:

- **EN 50128 / EN 50657:** Ensure the highest level of reliability and compliance for software used in Railway control and onboard systems
- **IEC 62443:** Integrating Cybersecurity to secure Railway infrastructure and protecting critical train control and communication systems against cyber threats
- **TS 50701:** Cybersecurity becomes a key concern in Railway operations, so enhancing protection against cyber risks in connected and autonomous Railway systems is paramount
- **SIL 4-Capable Partitioning Architecture:** Enabling the safe consolidation of multiple Railway functions to ensure deterministic and secure execution of Safety-critical applications alongside non-critical workloads
- **Safe Multi-Core Processing:** SYSGO adheres to the latest industry guidelines for safe and efficient multi-core processing in Railway applications, ensuring that modern multi-core hardware meets the performance and Safety requirements of next-generation Rail systems

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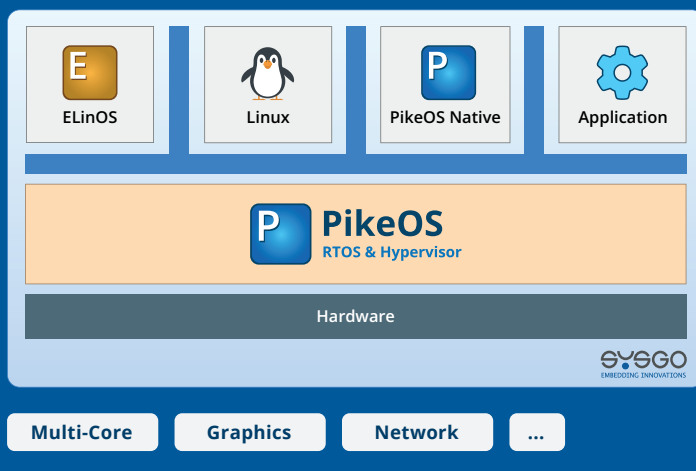
Safe & Secure Operations

The Future of Intelligent Systems

PikeOS provides a robust foundation for next-gen Railway systems. Its microkernel architecture ensures high performance, Safety, and Security, making it ideal for applications such as autonomous train operations, wayside communication, signalling, and train control systems.

Key Features

- **Hardware Compatibility:** Support for a wide range of processors, including x86, ARM, SPARC, PowerPC, and RISC-V, ensuring seamless integration Railway control systems, signalling equipment, train management systems, and smart Railway gateways
- **Mixed-Criticality:** Strict partitioning enables critical functions (e.g., train control, emergency braking) to run alongside non-critical applications (e.g., passenger information, data logging) on the same hardware
- **Guest OS:** Can host various guest operating systems, such as ELinOS, Linux, POSIX, etc., facilitating diverse application deployments
- **Certifiability:** Designed to meet rigorous certification standard such as EN 50128 and EN 50657, ensuring compliance with international Safety and reliability requirements
- **ITAR-free:** As European company, our products have no export restrictions enabling unrestricted global deployment

→ www.sysgo.com/pikeos

Why choose SYSGO?

- **Engineering Excellence:** Combining expertise with cutting-edge technology to meet the evolving demands of modern embedded, performant, and connected systems
- **Cutting-Edge Solutions:** Enabling autonomous train operations, wayside communication, CBTC (Communication-Based Train Control), ETCS (European Train Control System), predictive maintenance, next-generation train control and monitoring systems
- **Long-Term Support:** Ensuring stability with extended product life cycles, continuous updates, and dedicated technical assistance

Our Commitment to Excellence

At SYSGO, we deliver more than just software: We provide confidence and reliability. Our certified real-time operating systems and virtualization solutions empower operators, infrastructure providers, and system integrators to develop future-proof, connected, and inteligent Railway applications.

Kontron: „We are delighted to be part of this world premiere. Our collaboration with SYSGO has always been successful, but the SIL 4 certification of PikeOS on our VX3035 board further enhances the competitiveness of our joint offering for all safety-critical markets."

For a Safe & Secure Operation

In today's modern Railway industry, Safety, Security, and reliability are essential. SYSGO's certifiable real-time solutions provide the strong foundation for mission-critical applications, ensuring seamless operation in train control systems, signalling, wayside communication, autonomous operations, and beyond.

With decades of expertise and a commitment to innovation, we help you meet the highest industry standards while enabling next-generation technologies. Partner with SYSGO to build systems that are not only powerful but also safe, secure, and future-ready.

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