



Choose certainty.
Add value.

Signalling services

Testing, inspection and certification services, from planning and implementation to operation.

Your challenges

The complex interdependencies of signalling, telecommunications, power supply and other safety-critical equipment and systems in the rail sector pose real challenges for operators and manufacturers. It is essential to ensure that safety, performance, quality and interoperability objectives are met as cost-efficiently as possible. European Train Control System (ERTMS/ETCS), a globally uniform train control and protection system, is set to replace the existing safety systems in Europe, presenting rail businesses with a migration concept and additional requirements that must be fulfilled.

What support services are offered by TÜV SÜD?

From risk analyses to the development, planning and engineering of control systems and signalling technology, telecommunications, power supply and catenary systems, rail manufacturers and operators can call upon the support of our company at every stage of the product life cycle. Our expertise focuses on analysis,

validation, assessment, certification and plan verification and acceptance testing. We cover all state-of-the-art technologies that are used in signalling systems for rail infrastructure, from relay-driven systems to fully software-controlled systems (microcomputer, FPGA) and standard industrial safety systems (Programmable Logic Controller, PLC, SPS).

How do these services benefit your business?

By taking advantage of support services to manage the complex requirements for the validation and assessment of signalling systems and technologies, you ensure and document that your systems efficiently comply with safety requirements. Our objective is to realise the maximum safety of your products at the minimum costs. TÜV SÜD operates in all areas of rail signalling (e.g. interlocking and electronic interlocking systems, CBTC systems, human-machine interface systems, axle counting systems, ATP systems) and all train types (high-speed,



conventional, light rail/Regulation on the Construction and Operations of Light Rail Transit Systems [BOStrab], metro).

How can we help you?

With lengthy experience and extensive qualifications in the rail sector, TÜV SÜD is your partner for all aspects of signalling systems for railway infrastructures. TÜV SÜD Rail and SIGNON, a subsidiary of TÜV SÜD, provide expert support at all levels from system components to complex large-scale infrastructure projects, with an extensive pool of experienced and highly qualified engineers and tailored tools at their disposal. Railcert, another TÜV SÜD subsidiary, is a Notified Body for certification.

Our signalling services

We provide practical solutions to ensure your project meets all safety, performance, quality and interoperability objectives.

■ Validation

TÜV SÜD can support clients in the validation of generic products and applications as well as specific applications at software and system level.

■ Independent safety assessment

As an Independent Safety Assessor (ISA), TÜV SÜD provides independent assessment services of generic products and generic and specific applications in accordance with EN 50126, EN 50128, EN 50129 and other standards for trackside and on-board equipment.

We focus on assessment of engineering data and approval testing for signalling, telecommunications and electrical systems, functional safety testing and engineering specifications for national rail signalling, telecommunications and electrical systems within the scope of responsibility of the German Federal Railway Authority (EBA).

In addition to direct support services, TÜV SÜD Rail's experts provide impartial quality and safety audits, supported by tools including TRAS (effective communication over queries and deviations/open system issues/action items for distributed teams) and SATVALID (tool for recording and automatic validation of ETCS route data).

■ Certification

TÜV SÜD conducts conformity assessments, both in cooperation with Railcert and as an associated partner with EISENBAHN-CERT (EBC).

These include conformity assessment to EU Council Directives (high-speed and conventional rail systems) and comprehensive support for approval processes for signalling, telecommunications and electrical systems. Our service portfolio also spans conformity assessment of interoperability constituents of the control-command and signalling (CCS) subsystem to EU Council Directives.

Our specialists can certify your product to the relevant sector-specific safety standards (TÜV SÜD Mark certification, e.g. standard series EN 5012X).





■ **Training**

Our experienced specialists conduct training for a range of signalling systems, focusing on signalling and safety systems (e.g. basics of rail signalling, ETCS, CENELEC standards).

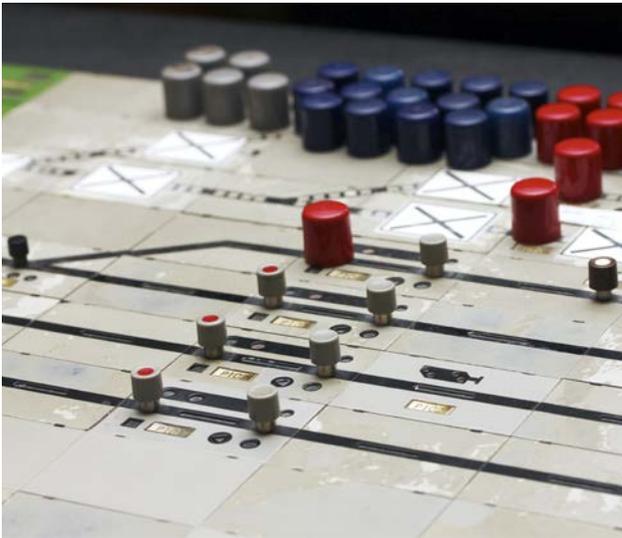
Your business benefits

- **Save time and money** – through our long-standing experience in signalling projects for railways and system suppliers. Our experts work in partnership with your development and safety management team, enabling us to manage your projects successfully in terms of time, cost and quality.
- **Generate competitive edge** – with TÜV SÜD's widely recognised and accepted certificates and certification marks for your products and systems.
- **Minimise risk** – as our expert reports can significantly streamline approval processes. In addition, by involving

an expert at an early stage, you minimise the risk of additional delays in development or documentation.

Why choose TÜV SÜD?

TÜV SÜD has nearly half a century of experience in the rail sector, with extensive technical expertise in consulting, engineering and independent assessment tasks for all kinds of systems and subsystems belonging to railway traffic. We are recognised worldwide as a railway safety assessor. Many of our experts are also recognised by German and other European and international authorities for their assessment reports. Through our subsidiary SIGNON, TÜV SÜD additionally provides support for upstream project phases, including planning, consulting and implementation assistance for all aspects of rail infrastructure. This enables you to complete even the most complex projects efficiently and at minimum risk.



Choose certainty. Add value.

TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training and consulting services. Represented in over 800 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

Related services

TÜV SÜD provides the following related services:

- Approval management services
- Urban rail system services
- Railway energy services
- Rail infrastructure services
- Rolling stock services
- Fire protection services