

Innovative Solutions for every type of rail transport

In the market segments of main lines, regional railways, secondary and industrial railways, as well as nostalgic heritage railways, we contribute to the success of our customers' projects with our many years of experience in the field of safety technology and our innovative products. Based on a uniform technology, we find specially adapted solutions for every area and every type of rail traffic.

MAIN LINES

Main lines are of great importance for public transport and a means of transport for many travellers. Maximum safety and reliability are top priorities, as is rapid repair and interaction with numerous other safety systems. With our SIL4-certified level crossing system iSIS-LC, we meet these requirements and find the right solution for your project.

REGIONAL RAILWAYS

We realise a large part of our projects in the area of regional railways, which also require a high level of safety and reliability as well as low maintenance. With our flexible system concept, we react to your individual requirements and adapt the safety system to the local conditions.

INDUSTRIAL RAILWAYS

Freight traffic on the railways is under ever increasing cost pressure, while at the same time safety requirements are rising. The flexible iSIS-LC modular system enables perfect integration into the processes of your connecting railway at low acquisition costs. In addition to the technical solution, we also offer the entire project management as a general contractor.

HERITAGE RAILWAYS

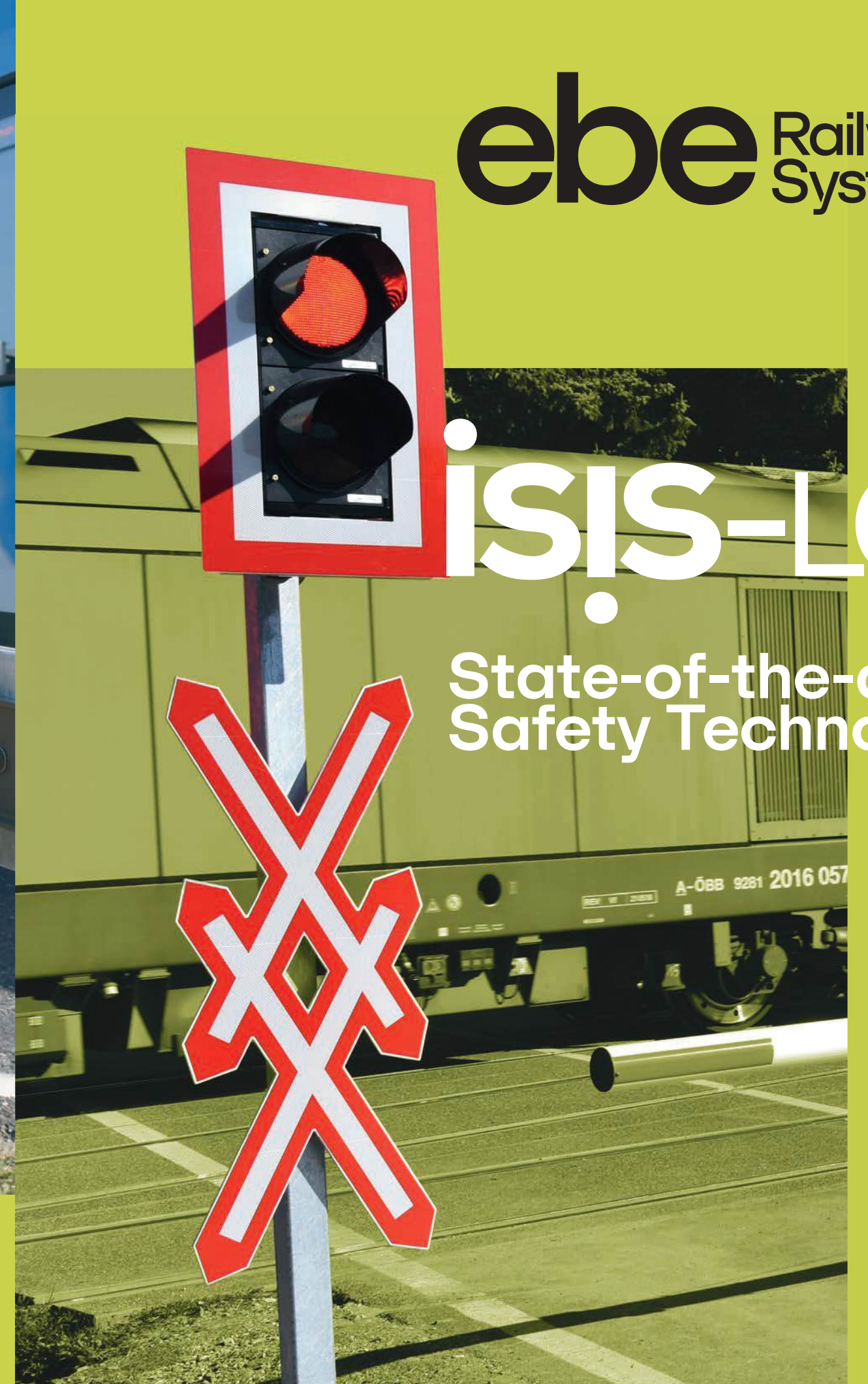
For heritage railways, our innovative iSIS-LC level crossing system enables a simplified system structure and thus the lowest investment costs. With our easy-to-use systems, even heritage railways can increase safety at their level crossings.

THE ADVANTAGES AT A GLANCE

- Developed according to international standards EN50126, EN50128, EN50129
- Certified to the highest safety level SIL4
- Adaptable safety architecture (SIL2 and SIL4 versions with the same components)
- Low energy consumption, therefore operation via solar supply possible in special design variants.
- Flexible system concept thanks to high-quality industry standard components
- Extensive diagnostics by the railway company and EBE service center
- Low investment and life-cycle costs

Only at EBE Railway Systems:
communicating components –
you always have your systems on screen

The iSIS-LC safety systems for level crossings, our dialLOC interlocking solutions, the EBE ISMO control centre and our customers are in constant communication with each other. You always have the status of all systems on screen, just as we do as service partners.



ebe Railway Systems

iSIS-LC

State-of-the-art Safety Technology

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iSiS-LC

iSiS

SIL 4 APPROVED

Flexible and efficient solutions for the protection of level crossings

Our iSiS-LC systems (innovative system for intelligent safety at level crossings) are future-oriented level crossing safeguarding systems, based on commercially available components, supplemented by field elements (light signal heads, barrier drives, track switching equipment) specially developed for railway applications. The flexible technical platform was developed in accordance with the CENELEC standards EN50126 / EN50128 and EN50129 and has approvals according to CENELEC up to and including SIL4.

The use of state-of-the-art and proven industrial and railway technology components ensures high

reliability and long-term availability of the modules. The centrally and decentrally expandable safety-related control technology as the core of the system enables a previously unknown flexibility and thus the customer-specific adaptation of the system without costly new approvals.

LOW INVESTMENT- AND LIFE-CYCLE COSTS

iSiS-LC is designed to reduce both the investment costs and the life-cycle costs of level crossing / rail-way crossing safety systems in the long term. For this reason, iSiS-LC is designed to be low-maintenance and enables components to be replaced quickly and easily.

The core element is the main controller – a safety-oriented programmable logic controller (PLC) supplied by the Pilz company and configured with two or multiple channels in accordance with the given safety level. The main controller assumes all control and monitoring tasks.



Safety at the highest level: SIL4 certified

The conditions for controlling and monitoring the light signals and barriers, the dependencies for activating the driver indication signals, the monitoring of the voltage supply, the manual control logic and evaluating the axle counters are key functions which have been implemented as part of the software in the main controller.

The signalisation is initiated by iSiS-LC using low-power LED signals. These feature an integrated monitoring system where the light source and the monitoring have been configured using two channels. Durable and low-maintenance motors are used for the electromechanical barrier drives. The control and regulation of the opening and closing times, as well as the monitoring of the barrier position, is realised via the main controller and the motor control circuits integrated into the barrier drive. The monitoring of the barrier position is realised via redundantly operating sensors which signal the position of the barrier to the main controller.

SPECIAL ALGORITHMS FOR RELIABLE DETECTION

Wheel sensors for counting axles in combination with specially implemented algorithms in the main controller ensure the safe and reliable recording of train movements and subsequently the activation and deactivation of the safety system.

iSiS-LC is equipped with safety-oriented IP-based protocols, as well as parallel interfaces in order to ensure the simple connection of the level crossing safety system to the other systems (i.e. the interlocking systems, etc.). These other safety installations can either be connected directly to the level crossing or via a remote monitoring controller. This is configured as a safety-oriented PLC and communicates with the main controller of one or several level crossings.

Furthermore, the system registers all occurrences, errors and faults and provides an extensive array of diagnostic functions via an installed Panel PC with a user-friendly touchscreen.

PROTECTED AGAINST FAILURE AND OVERVOLTAGE

All the system modules are designed for extended temperature ranges and allow the installation of the control components in outdoor cabinets. A proven lightning protection concept reliably safeguards all the units against the influences of overvoltages.

Both architectures, SIL4 and SIL2, reliably handle all the individual faults, whereby the EN50129 fail-safe principles have also been universally applied.

Low energy consumption, grid-autonomous supply optional

The low energy consumption not only reduces the running costs of the system, but also enables the grid-autonomous supply of a level crossing with solar panels and buffer batteries in special design variants.

TECHNICAL SPECIFICATIONS

- Customisable safety architecture (SIL 4 or SIL2)
- Indoor and outdoor systems fulfil an extended temperature range (control components can be housed in outdoor cabinets)
- Control of up to 32 LED-Signals
- Control of up to 16 barrier drives
- Control of up to 24 strike-in points and up to 24 strike-out points
- Connection to different interlocking types (very variable)
- 2 in 1: two level crossings controllable with one indoor system
- Digital interfaces
- Mobile communication

