SAFE.
EFFICIENT.
RELIABLE.

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zonegreen

RAIL SAFETY SOLUTIONS
YOU CAN TRUST

Zonegreen is the rail safety solution offered by the Sentric Safety Group.

The Sentric Safety Group unites some of the world's leading safety brands, Castell, Kirk, STI, Salvo, and Zonegreen, to provide long-term protection of people, productivity, and business reputation for businesses that operate in harsh and safety-critical environments.

Rail maintenance facilities are complex and high-risk environments, filled with numerous hazards that can lead to potentially fatal accidents and costly equipment damage. Safety must be a key priority for all involved.

Zonegreen Rail Safety Solutions

Zonegreen products are the result of more than a century of railway experience and expertise. The innovative Depot Personnel Protection System (DPPS) and advanced interlocking solutions protect maintenance workers and infrastructure worldwide. Using the latest technology to automate personnel protection procedures and improve vehicle movement efficiency, the margin for human error is effectively and significantly reduced. Zonegreen solutions address diverse challenges and offer unrivalled depot safety management. Each product is renowned for its quality, safety and reliability and can be combined to create user-friendly, configured packages, tailored to the very individual needs of each maintenance facility.

Providing a Safe Working Environment for Rail Staff

Railway safety is non-negotiable. Zonegreen products ensure that every aspect of railway equipment, operations and infrastructure offer the very highest levels of security, fostering a reliant and safe railway network.

DEPOT PERSONNEL
PROTECTION SYSTEM (DPPS)

DPPS enables the safe and efficient control of vehicle movements in rail maintenance depots. The innovative system delivers the highest level of staff safety while maintaining a productive working environment within rail depots.
It protects staff working on maintenance roads by physically preventing vehicles from entering unless it is safe to do so.

A Worldwide Safety Solution

Installed worldwide, DPPS is a proven off-the-shelf, modular solution that utilises standard hardware and software to provide excellent reliability and functionality. It can be configured to the client's precise requirements. Regardless of depot size, DPPS is designed for each facility's individual layout to ensure a safer working environment.

The system has been assessed to meet the hardware and software requirements of SIL 2 and is fully and independently EMC tested. Zonegreen DPPS is a widely installed, standardised product, meaning that operators across multiple depot facilities can adopt similar training plans, operating procedures, and spares packages to improve efficiency and limit downtime.

How it works

Trains approaching a depot will halt at a ground-level shunt signal, which is electronically interlocked with a powered derailer located 20 metres from the depot entrance. A supervisor gives the train access permission, using an operator-controlled road end panel (REP). This control panel is positioned in a convenient location within the maintenance building, normally next to the depot doors, giving a clear line of sight to incoming and outgoing trains.

Only after the derailer has been lowered will the shunt signal show a proceed aspect. Audible and visual warnings are then activated within the depot on the road where a train is moving. Once the vehicle is in position, the shunt signal is set to stop, the warning klaxons and beacons turn off and the derailer is raised to prevent further movement. Signalling interfaces and TPWS alternatives to derailers are also available.

DPPS is operated by RFID tags with varying authorisation levels – replacing the physical padlock found in traditional DP systems. This enables personnel working in different safety zones to be identified. Staff log on to the REP when they begin work, which prevents the derailer from being lowered, providing them with physical protection from train movements.
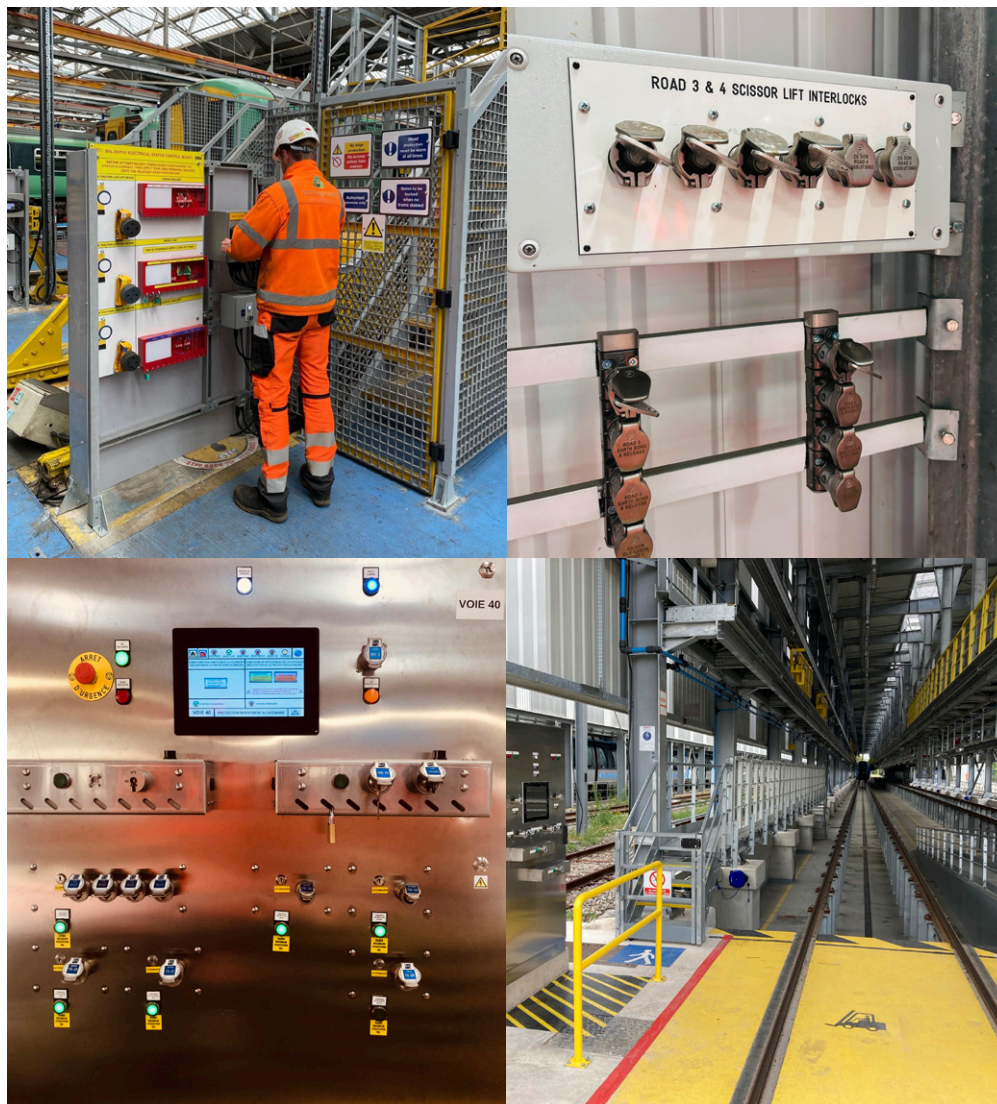
INTERLOCKING

Interlocking is a crucial component in any rail depot, where a momentary lapse of concentration or small error of judgment can have dire consequences.

Zonegreen Interlocking Solutions

Zonegreen Interlocking solutions are vital for protecting both personnel and equipment in rail maintenance facilities. They prevent unauthorised train movements or access to high-risk areas and ensure that safety standards are upheld.

Electronic Interlocking Solution (EIS)

The Zonegreen EIS is a modern safety electronic interlocking system that controls multiple types of machinery and access to hazardous areas using a Safety Programmable Logic Controller (PLC), which uses programmable logic and electronic sensors, instead of the traditional mechanical keys.

The Safety PLC provides both sequencing and control of third-party equipment, such as gantry gates and crane interlock panels. The PLC monitors the third–party equipment via a volt-free contact and can enable or disable the equipment as required. HMI monitors display the status of equipment to operators at all times. Hardwire sensors send signals back to the monitors to ensure safety access is only permitted to workers when it is safe to do so.

Advanced benefits

- › **Flexible and Programmable:** The software can be reprogrammed to accommodate different safety sequences.
- › **High Reliability:** Zonegreen EIS uses fail-safe principles to ensure safety functions operate, even in the event of faults.
- › **Easier to Scale:** The product can handle multiple interlocking zones without adding more physical locks and keys.
- › **Remote Diagnostics:** Zonegreen EIS allows troubleshoots and status monitoring remotely.
- › **Fast Operation and Tamper Proof:** The electronic system uses encrypted communication and authentication.
- › **Visualisation:** Zonegreen EIS offers a remote visual overview of the system.

Zonegreen EIS is a configurable solution, designed to accommodate individual rail depot installations and their significant variations in operating procedures.

Trapped key interlocking

Trapped key Interlocking (TKI) is sometimes known as a key transfer system. It uses a series of coded keys to prevent dangerous machine functions from being performed, and they can limit access to certain areas unless specified conditions are met.

The same key is used for multiple locks, preventing more than one piece of equipment being accessed at any one time. If your depot requires access to various equipment, or multiple areas under the same conditions, an exchange box can be added to allow the release of additional keys.

Best of the Best

Zonegreen solutions integrate the best of the best trapped key interlocking systems to suit the customer's local preferences. The solutions are modular and can be expanded or modified to grow with any rail maintenance depot. Pre-existing systems can be adapted, or updated, when changes are required.

Zonegreen solutions protect personnel and machinery from vehicle movements, the overhead line (OLE) and the third rail. Some of the equipment that can be interlocked includes:
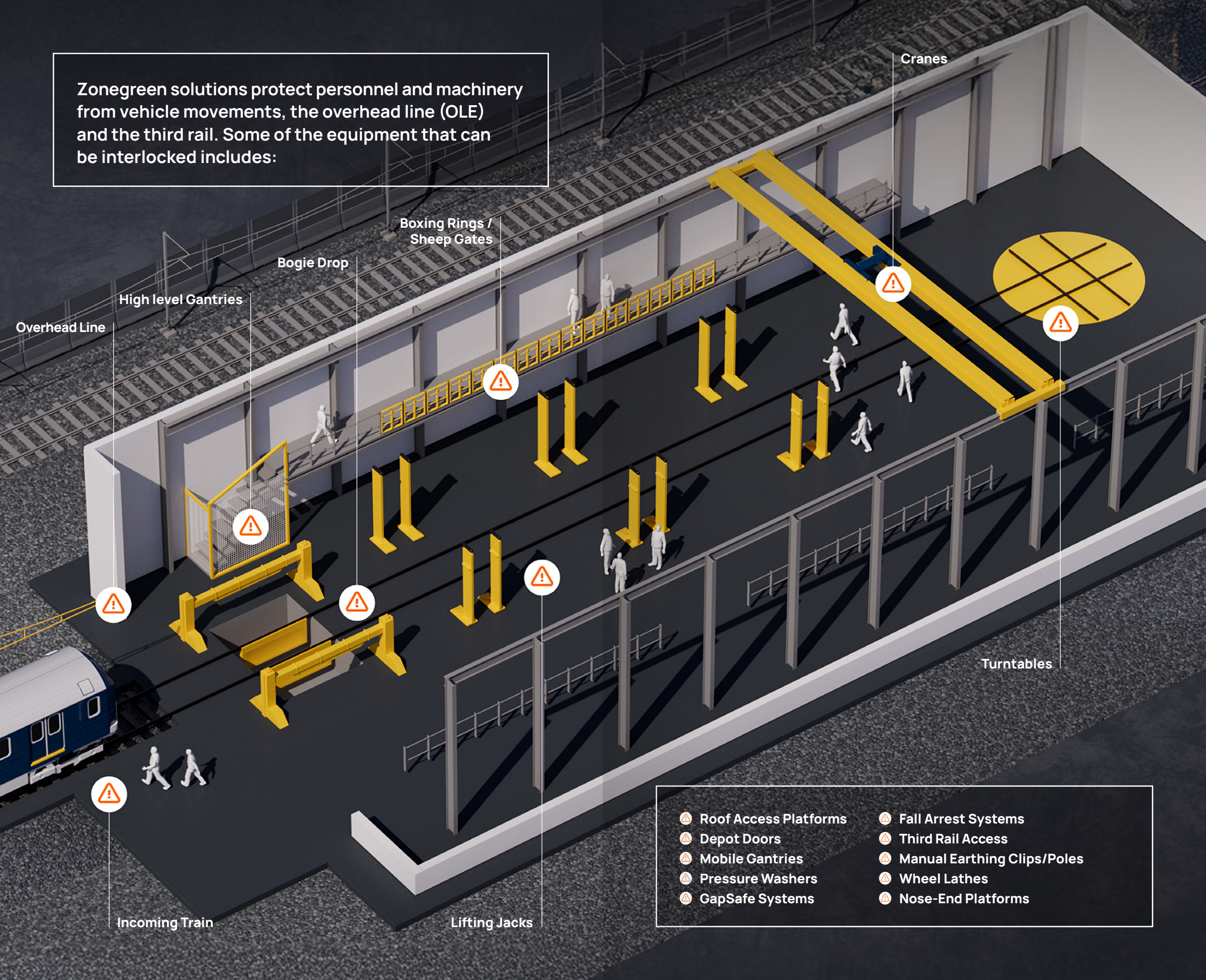
Cranes

Boxing Rings / Sheep Gates

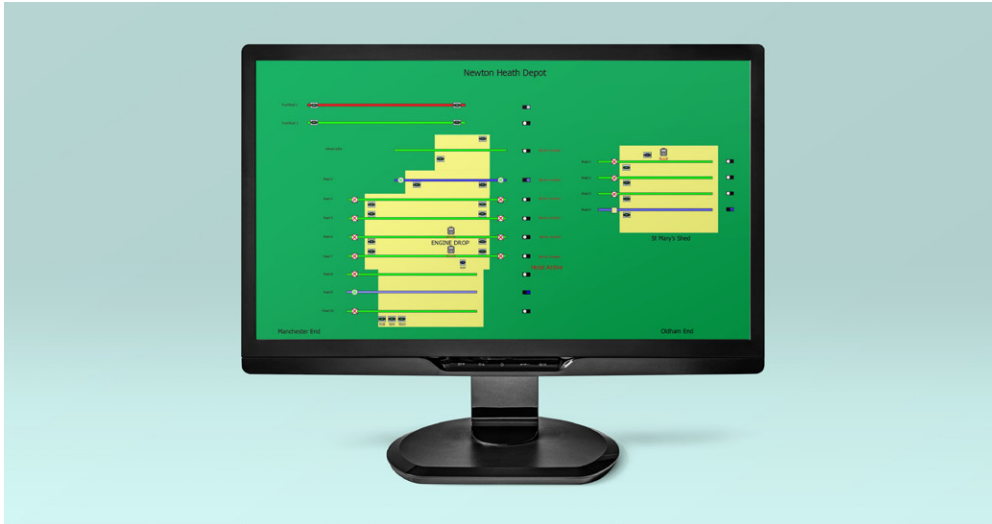Bogie Drop

High level Gantries

Overhead Line

Turntables

Incoming Train

Lifting Jacks

⚠ Roof Access Platforms
⚠ Depot Doors
⚠ Mobile Gantries
⚠ Pressure Washers
⚠ GapSafe Systems

⚠ Fall Arrest Systems
⚠ Third Rail Access
⚠ Manual Earthing Clips/Poles
⚠ Wheel Lathes
⚠ Nose-End Platforms

DEPOT MANAGER

Depot Manger software accompanies Zonegreen DPPS, offering a complete visual overview of the entire system. It provides key information to make operations quicker and easier to implement, as well as offering complete traceability.

State-of-the-Art Software

The software can also be linked to other equipment, such as lifting jacks, bogie drops, train washes and wheel lathes to show their status.

Additional mimic depot manager screens can be installed at further locations within the depot to display the graphical overview.

Depot Manager displays the status of machinery on a large plan view of the depot, identifies the status of workers, and shows the status of each road. Events, including user and vehicle movement, are logged automatically to provide accurate information and full traceability.

Depot Manager can be configured to:

› Display the state of personnel
› Provide a graphical overview of DPPS
› Allow remote fault diagnostics
› Have multiple mimic depot managers (optional)
› Record all aspects of depot protection
› Display status of plant and equipment
› Authorise remote movements on the DPPS
› Interlocking visualisation
› Rail- Lox

POINTS CONVERTER

The Zonegreen Points Converter is a safe, efficient and reliable solution that has been designed to allow the automation and remote operation of traditional manual hand points, reducing the risks of handling injuries and falls on uneven surfaces.

Modernising Technology

A control panel enables the Points Converter to be operated via an intuitive handset that can be portable, installed in a cab or mounted on a post in the vicinity of the point, allowing it to be switched from a position of safety.

A centralised control system is also available via a Microsoft Windows PC interface that offers route planning and visualisation, as well as the remote control of the Points Converter device. Both this and the remote handset can be used in route selection mode, allowing one command to operate several points and crossings simultaneously. The points are monitored continuously to allow the user to view their status and confirm they have been set correctly.

Why power your manual points?

› Enhanced safety of personnel reducing the risk of slips, trips and falls
› Removal of excessive manual handling requirements
› Eliminates the risk of working alongside the third rail
› Expandable and flexible. Routes can be pre-set, reconfigured and upgraded
› Benefit from an event logging system that offers full traceability of points operation
› Low-cost installation
› Fully EMC tested
› Simple to operate

CONTACT ZONEGREEN

If you have any questions about the rail safety solutions outlined in this brochure, or you would like further details about how they could be applied to your depot, don't hesitate to contact our team:

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