ACCESS DENIED

Catherine Laug *examines the options when it comes to security and access control for public underground trains*

The transport sector is vulnerable to safety and security risks, particularly railways and underground train lines. When it comes to public transport, the high number of passengers generates major risks and gives access control a mission-critical role to play.

One main priority is to ward off any malicious intrusion attempts and potentially devastating consequences, while maintaining access to the installations in the interests of service continuity. Another challenge involves dealing with unforeseen incidents, such as fires and passenger accidents. It is essential that the emergency services can reach the site of the incident unimpeded when necessary.

The sheer size of the infrastructure within this industry is much greater than any other, with hundreds of miles of fencing along railway lines and thousands of gates requiring high levels of protection. However, there is more to major rail transport infrastructure than miles of fencing alongside a railway track. They are also made up of electrical substations, technical installations (lifts, ventilation systems, pumps, *etc.*) and tunnel shafts for aeration purposes. These outdoor facilities are at the mercy of our ever-changing weather conditions, be it extreme sunshine, snow or rain and they can sometimes be located a long distance from the electrical grid, such as in the case of railway tunnel shafts. This exposes them to a risk of corrosion and intrusion.

Standardised access control solutions need to allow maintenance companies and staff easy access to the right place at the right time

Given the complexity of the infrastructure and organisations (as well as the rail company employees, service providers and other parties who must access the sites), it is essential customised solutions be implemented. An effective solution ensures streamlined operations while guaranteeing a high level of security. The nature of the equipment must help reduce or even avoid installation and maintenance work. Meanwhile, the software solution must allow the flexible management of access rights and information updates in line with security requirements.

All areas within the rail infrastructure need tailored access control solutions, which meet the requirements of each location and user. Given the complexity of the infrastructure, composed of sprawling or isolated sites and including tunnels and railway emergency exits, locks without cables are mandatory. Easy installation and minimal maintenance are also required. It means that the keys must supply the required power and access rights to the cylinder.

As service quality is an issue, a seamless, standardised access control solution is needed to allow maintenance companies and staff easy access to the right place at the right time. The latest-generation electronic key combines the advantages of a cable-free electronic access control system with the benefits of a mechanical option in a single smart key.

Based on contactless induction technology, electronic keys provide the fastest opening times of any access control system and exceptional ruggedness with no direct contact between the key and cylinder when transmitting the access rights. The key and cylinder exchange information through magnetic induction rather than electrical contact.

Proven yet revolutionary in the access control sector, this technology offers two major advantages; it makes life easier by opening doors almost instantaneously, with information exchanged between the key and electronic cylinder in less than 80 milliseconds, ie the time it takes for a regular key to recognise a mechanical cylinder; and it ensures unrivalled durability with contactless communication between the electronic key and cylinder, making it immune to dust, wear and tear and oxidation caused by humidity or salt.

IT IS ESSENTIAL THAT THE EMERGENCY SERVICES CAN REACH THE SITE OF ANY INCIDENT UNIMPEDED

A single electronic key with the necessary access rights can open a vast number of locks and replace cumbersome bunches of keys. This frees up employees when opening gates or moving between sites.

All keys are controlled by the same software and managers can accurately configure each key according to the users. Any openings or attempted break-ins are logged in the electronic key's memory and sent to the central software.

A Bluetooth version of the key offers even greater control, as access rights can also be updated on site using a smartphone and mobile app. It is therefore capable of offering centralised control and case-by-case, real-time access control, reaching standards of security that are usually only available from online access control systems.

This cutting-edge technology (RFID, beacons, *etc.*) sends employees verification messages about their access rights or required safety instructions (wearing a helmet, the buddy system, *etc.*). Similarly, users can interact with the central system and submit on-site attendance reports, flag up anomalies errors, *etc.* These bespoke features are designed to meet ever stricter security requirements and accommodate the latest Government guidelines.

The electronic key does not require any on-site cabling or batteries for the lock, because the key supplies the cylinder with the energy and the information required to open the lock. In this way, users working on large infrastructures or complex sites with multiple points of access can make do with a single key. The solution is made even more flexible by its purely mechanical component, which can be used to open conventional mechanical cylinders, wherever the two types of locks co-exist within the same system, which may prove useful when accessing less-sensitive areas. This approach ties in with increasingly strict security policies within the underground rail industry.

With high volumes of people entering and exiting different areas of the underground system, it is important to be able to trace who has been where, when and for how long. Advanced software suites can provide access to all operations performed by users, including a complete

audit trail. This information is often used by managers for audits, improvements or compliance.

When initiating a new access control system, it is important that the supplier and customer work together to understand; who can enter a secure area, where in the building each individual has access to, when an individual can enter a secure area and how an individual will gain access to a secure area.

RAIL ACCESS CONTROL SOLUTIONS NEED TO MEET THE REQUIREMENTS OF EACH LOCATION AND USER

This information can be crucial in the event of a security breach, enabling investigators to find out who was the last known key holder in that location and what their movements were while there. What's more, a lost or stolen electronic key can be disabled to prevent any unwanted intrusions. The reporting feature aims to report any attempts to gain access outside specified time ranges or in out-of-bounds areas, thus detecting any anomalies.

The electronic key has the IP 66-67-68-69 rating, meaning it's designed to protect against intrusion from foreign bodies and pressurised water jets, and particularly hardy in the event of damp, rain and dust. The cutting-edge contactless induction technology prevents any poor communication caused by corrosion. The cylinders have CEN 1303 certification, which guarantees their resistance to drilling and vandalism. The electronic access control solution comes with a backup key configured with unlimited rights. This gives the fire brigade and police round-the-clock access to all areas, with no need to update access rights.

You can update permissions from a computer or, even more conveniently, using an app on your mobile phone at the time of access, which will update your key's permissions via Bluetooth. This allows shortened validity periods, constrains movements to be in line with company access policy and removes travel and fixed authoriser costs. This then delivers increased flexibility and higher levels of security.

Access rights can be set at any time and on any day, and if required can allow access on just one specific occasion, for example to repair a fault. Access can be restricted to enable entry only during working hours, for example.

Permissions can be granted for the amount of time required, which means that if permission to access a site is requested using the mobile app, access, for example, can be granted for the next five minutes. Once this time has passed, the permission expires. The rules for granting permissions are infinite and easily customisable and the system is very efficient when they are applied; as a result, the system is highly flexible and can be adapted to suit company processes and infrastructures.

In many cases, companies themselves find new applications for the solution, such as the need to obtain access using two different keys simultaneously to prevent a lone worker from accessing a dangerous area.

What makes this solution really smart is what's behind all of this – the software that manages access. It can be used from a powerful, but simple web-based access manager or through personalised software that is integrated within a company's existing software solution to automatically include information such as the employee's contractual status, occupational risk prevention and the existence of work orders.

In some companies, the access management system will help to further improve service levels by integrating it with the customer information system, allowing to link it – for instance – with alarms managers, intrusion managers or HR processes.

The ability to develop the solution in a way that is fully and completely integrated with the company's operation has made this the leader in electronic access to infrastructures ●

Catherine Laug
– Group Head of Marketing at Locken, part of the ISEO group. Catherine has been working in the access control industry over the last 10 years, with demonstrated experience in B2B technological environments, working with a number of international companies.

The latest-generation electronic key combines the advantages of a cable-free electronic access control system with the benefits of a mechanical option in a single smart device

Picture credit: Crossrail Ltd