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Intelligent access control – how technology is improving the performance of the electronic digital lock

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Standalone digital locks have been available in the market for many years. During this time a wide range of products have been developed to meet different access control applications. At the entry level end of the market, simple, single-coded mechanical locks are widely used to restrict access. Increasingly, these are being replaced with electronic products that have advanced programing features, allowing them to be used as an alternative to the more expensive networked systems.

The main driver for the rise in popularity of digital locks is the obvious removal of the need to use and, more importantly, manage keys. Key management is a major consideration in any large building or office complex, as keys often get lost or stolen. But simply replacing a key does not necessarily regain 'control' of the lock. To do this, a new key cylinder and number should be fitted – which can be a very costly and time-consuming process if keys are lost on a regular basis. By comparison, if the code on an electronic digital lock is compromised, it can be changed on the door in seconds. It is for this reason we've seen a substantial increase in the range of applications for standalone digital locks.

Rising stars

Traditionally, facilities or estates managers turned to expensive card-based access control systems if they required a lock with sophisticated features. However, over the years battery-operated digital locks have become increasingly capable.

For example, it is possible to connect an electronic digital lock to a building's alarm system. This will automatically free the lock so the door can be opened without the code in an emergency situation. Electronic digital locks can also be connected to a release button to allow staff to 'buzz' in a visitor. This feature can be useful in a reception area of an office building that uses an intercom system on the front door.

An important consideration in selecting a digital lock is the convenience of programming the access code. Technology changes have significantly influenced the way in which access codes are changed on digital locks. For example, to change the access code on most mechanical locks you have to remove the lock from the door. With an electronic lock, you don't have to – the codes can be programmed via the keypad. It is now even possible to specify electronic digital locks that can be programmed via a USB stick or similar device. This allows the owner of single or multiple locks to download specific programs and access codes from software on a computer to the USB stick and upload them to the lock. If an estates or security manager is responsible for updating and controlling the access codes for tens or even hundreds of digital locks; like in a hospital for example, then this feature can save a significant amount of man hours and also make it much more likely the codes are changed on a regular basis. All the access codes and programs can be viewed on the computer they were created, giving the manager clear visibility of how, where and when access permissions were set up and used.

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Inbuilt audit trail facilities

In industries where the protection of controlled assets or sensitive data is high on the agenda, a digital lock with the ability to record audit trails can be a useful analytical tool.

Taking hospitals again as an example, where medicines need to be carefully monitored and controlled. Access to the room or cabinet where the drugs are stored is likely to be restricted to a handful of medical staff, each one with an individual access code for the digital lock. In the event that some of the medicine is unaccounted for, data from the lock can be downloaded using a USB stick and then reviewed. The digital lock logs each access codes used, allowing you to see who has entered the room or cabinet and when.

The digital lock will also register any incorrect code attempts. If a high number show up on the data from the audit trail, then it could be that the lock has been tampered with. As the lock has an ID number, vulnerable areas can be easily identified.

Remote code generation

Another innovation that is improving convenience and control for digital locks is the ability to generate access codes remotely. A secure web-based application allows a unique time-sensitive access code to be generated, usually from a remote location for an individual or group of electronic locks. This works by setting up the locks prior to dispatch with a unique matching algorithm to the web-based software, which allows the software to predict the code on the installed lock at any given time.

This feature enables you to grant temporary access by remotely issuing a code to a digital lock in order to perform a particular service. A typical scenario is a data centre full of racks of servers, each one secured with a digital cabinet lock. Access to these servers is often required for routine or one-off maintenance purposes. The owner of the servers can send a maintenance engineer to the location and, using the application, generate a code for the engineer to access the cabinet. The code can be sent via a text message or email to the engineer's mobile on the day the access is required; it will not work outside the designated timeslot.

Intelligent access control

Technology advances continue to enable improvements in the performance and capability of stand-alone electronic digital locks, making them a cost-effective alternative to wired-access systems. Further development of the programming features will extend the scope of electronic keyless locks and their ability to serve new markets. In the future, new ways of controlling digital locks – such as using smartphone or tablet applications – will add to their usability and help the products secure an even bigger share of the access control market.

About Codelocks

Codelocks designs and manufactures a range of digital keyless door and cabinet locks for organisations that need to control access within their buildings. The locks save time and money by being easy to fit and easy to programme. Unlike other solutions, digital push button locks don't require complex wiring, ID cards or external power, and are more cost effective for many applications. The locks offer the user a convenient standalone solution and are sold with 'everything you need in the box' to fit them, including parts, instructions and templates.