

# Energy efficiency – it's in your hands!

ASSA ABLOY

The cost savings with wireless battery powered access control:  
a case study

The global leader in  
door opening solutions



## Energy Matters -

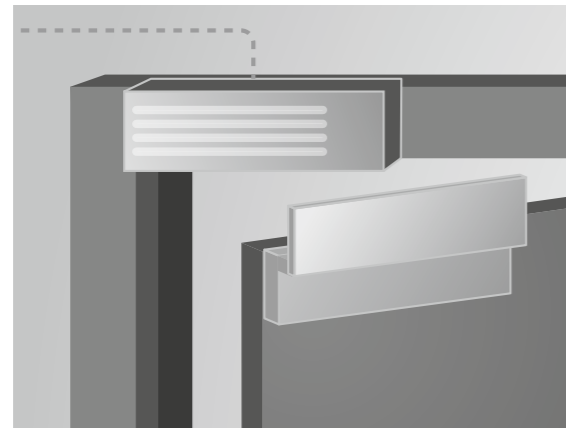
### Save money with wireless battery powered access control

Cabled access control doors are expensive: installation requires extensive wiring, and powering the locks needs a permanent connection to the mains. As a result, only doors with very high security requirements are incorporated into most access control systems—other mechanical doors with keys are often neither monitored nor controlled.

Security managers upgrading to electronic access control are faced with a choice between two kinds of device.



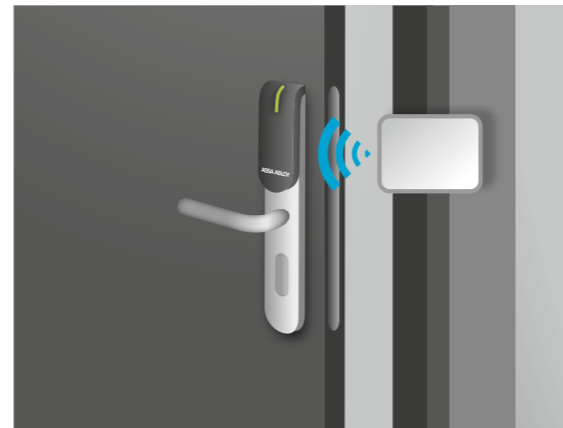
The first type incorporates a magnetic lock paired with an RFID reader. Both the magnets in these standard wired locks and the reader are powered by electricity, via a connection to the mains.



Now ASSA ABLOY's Aperio® Technology provides cost-effective access control integration for non-wired doors with mechanical locks, in part thanks to much lower energy consumption.



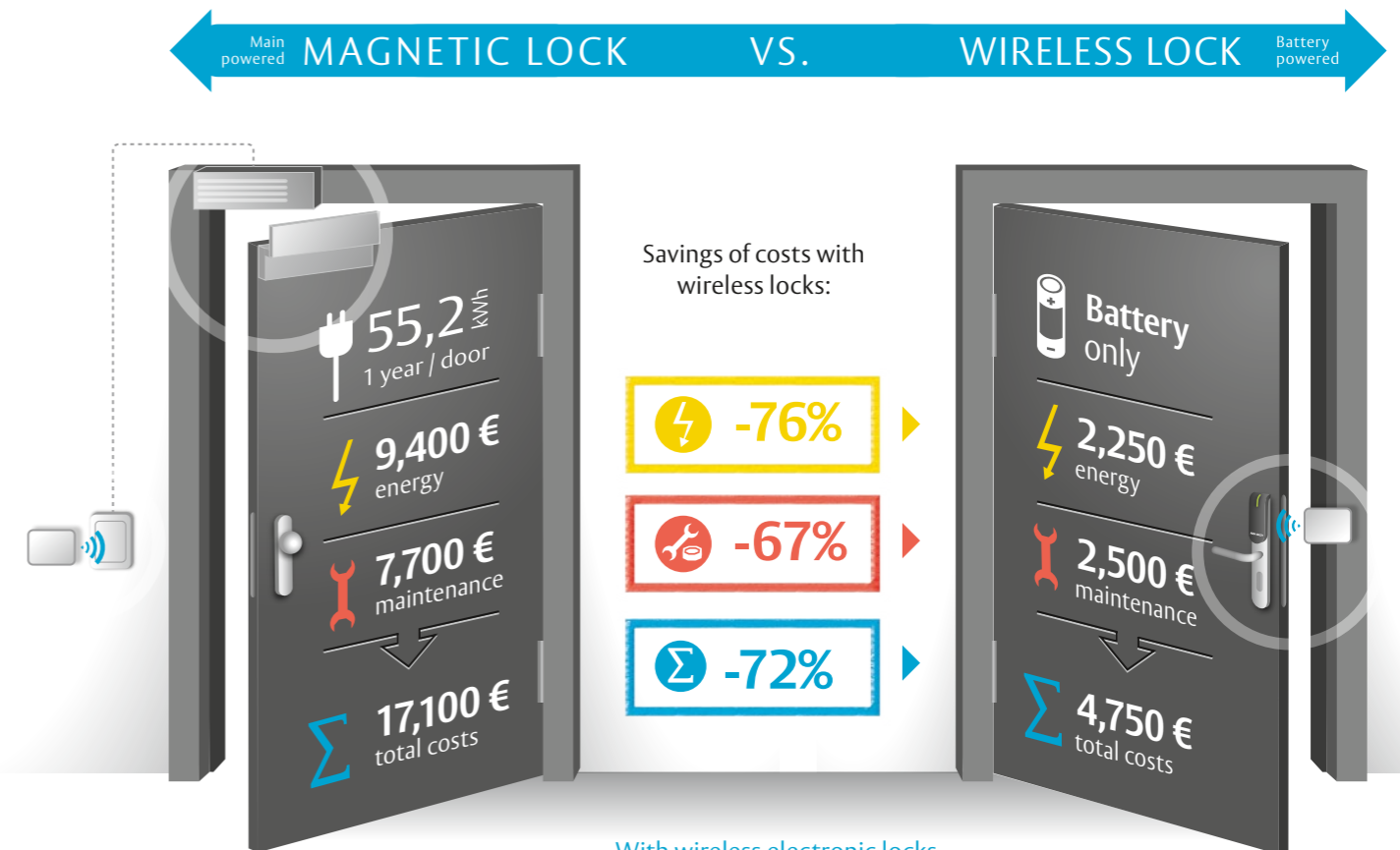
A second type of lock — a type that includes the ASSA ABLOY Aperio® range — is powered by a lithium ion battery. Wireless locks with RFID readers “wake up” only when prompted by a user credential. They are not connected to the mains, and do not remain permanently under power when inactive.



Upgrading mechanical doors to wireless, battery-powered Aperio® also gives Security and Facility Managers greater control. They can easily respond to organisational changes and only need to monitor a single security system. Users only carry a single RFID access control card.

## Lower energy use means cost savings with Aperio® – read the study calculation

Choosing which type of lock to install has cost implications. Costings from a real project — to fit 1,000 doors to a large student accommodation block — tell the story.



With wireless electronic locks, e.g. Aperio® escutcheons, you can save up to 72% of energy and maintenance costs \*

\* figures based on a student accommodation block with 1,000 doors



## How does ASSA ABLOY Aperio® perform?

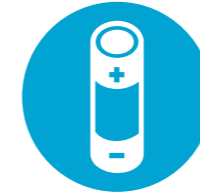


As shown in the table, the total running cost of securing the 1,000-door student accommodation for one year using standard wired locks is €17,000, or €17 per door. Electricity costs for Aperio® wireless locks and readers are negligible. However, the cost of buying and fitting new batteries must be calculated. The list price of a battery is €4.50, and each has a life of 2 years. Fitting costs are estimated at €2,500, giving a total annual running cost of €4,750, or €4.75 per door, assuming half of the batteries are replaced during the year.

Thus, in our example student block with 1,000 secure doors, the saving from installing wireless rather than wired locks is estimated at between €12,000 and €13,000, every single year. Fuel prices have been on an upward trajectory for a decade, and are projected to continue rising. So, it is likely that the cost differential between wired and wireless locks will increase over time. It will grow ever more expensive to control access to a building or secure area using wired magnetic locks.

*“ASSA ABLOY is committed to providing energy efficient door opening solutions that are environmentally sound throughout the entire production process and product lifecycle.”*  
Charles Robinson,  
Operations & Sustainability Analyst at ASSA ABLOY EMEA

	 <b>Traditional Magnetic Lock (with 500kg of hold force) + Powered Reader (hard-wired)</b>	 <b>Battery powered wireless Aperio™ escutcheon</b>
kWh (1 year/ 1 door)	<b>55.2</b> (50.8 kWh lock + 4.4 kWh reader)	<b>0.001</b> (1 x Lithium CR123A battery – 40,000 cycles or 2 years)
<b>Example project calculation – student accommodation with 1,000 doors</b>		
Energy costs per year	0.17 €/kWh x 55.2 x 1,000 = <b>9,384 €</b>	4.50 €/2 x 1,000 = <b>2,250 €</b>
	Average price of 1kWh in Germany, Source: International Energy Agency – Energy Prices and Taxes	Cost estimate per battery with 2 years of lifetime
Maintenance costs per year	7.70€ x 1,000 = <b>7,700 €</b>	5.00€ x 500 = <b>2,500 €</b>
	Cost estimate for preventative maintenance	Cost estimate to change battery assuming half of batteries are replaced during one year
Total costs per year	<b>17,084 €</b>	<b>4,750 €</b>
Cost per door per year	<b>17.00 €</b>	<b>4.75 €</b>
Savings per year for 1,000 doors		12.25€ x 1,000 doors = <b>12,250 €</b>
<small>Data &amp; calculations correct at time of publication and are based on industry standard average costs/tariffs/power consumptions; the rates and values used are variable and subject to change</small>		



*But how sustainable is the production of the lithium ion batteries needed to operate wireless locks, such as ASSA ABLOY's Aperio® range?*

According to research published in 2010 by the Argonne National Laboratory in Chicago\*, modern recovery processes ensure over 95% of a lithium ion battery's materials can be made available for reuse.

### Recap and key data

The sustainability benefits of Aperio® over wired access control during use include:

#### Significant cost savings:

- Installing Aperio® in a 1,000 door student accommodation block saves between €12,000 and €13,000 per annum

#### Future Cost Avoidance:

- Unrelenting energy cost increases, often as high as 9% year on year, will result in rising annual costs of using a standard wired lock and RFID reader
- Due to low energy consumption design, Aperio® is not subjected to these risks

*“Wireless battery powered locks – such as Aperio® – are a significantly more energy efficient solution compared to traditional electronic access control; resulting in much lower running costs and overall carbon footprint.”*

Charles Robinson,  
Operations & Sustainability Analyst at ASSA ABLOY EMEA



### About Aperio®

Aperio® from ASSA ABLOY is manufacturer-independent and closes the gap between wired access control doors and wireless doors with mechanical security technology.

Available on the global market place, ASSA ABLOY's Aperio® Technology now enables a wide range of access control providers to cost-effectively integrate non-wired doors with mechanical locks into access control systems.

\*Gaines, Sullivan, Burnham and Belharouak, "Life-cycle Analysis for Lithium-ion Battery Production and Recycling", 2010

ASSA ABLOY is the global leader in door opening solutions, dedicated to satisfying end-user needs for security, safety and convenience

**ASSA ABLOY**

[www.assaabloy.com/aperio](http://www.assaabloy.com/aperio)



“Wireless locking evolution for online and offline door control”.

**Aperio™** is a new technology developed to complement new and existing electronic access control systems. Providing end users with a simple, intelligent way to upgrade the controllability and security level of their premises.

## **ASSA ABLOY**

As the world's leading lock group, **ASSA ABLOY** offers a more complete range of door opening solutions than any other company on the market. In the fast-growing electromechanical security segment, the Group has a leading position in areas such as access control, identification technology, entrance automation and hotel security. Since its formation in 1994, **ASSA ABLOY** has grown from a regional company into an international group with around 42,000 employees and sales of more than SEK 40 billion.

**ASSA ABLOY** Access Control  
Willenhall  
West Midlands  
WV13 3PW  
United Kingdom  
[www.assaabloy.co.uk/aperio](http://www.assaabloy.co.uk/aperio)