ARX

Online Access system

ASSA ABLOY

ASSA ABLOY, the global leader in door opening solutions.

ASSA – integrated security solutions

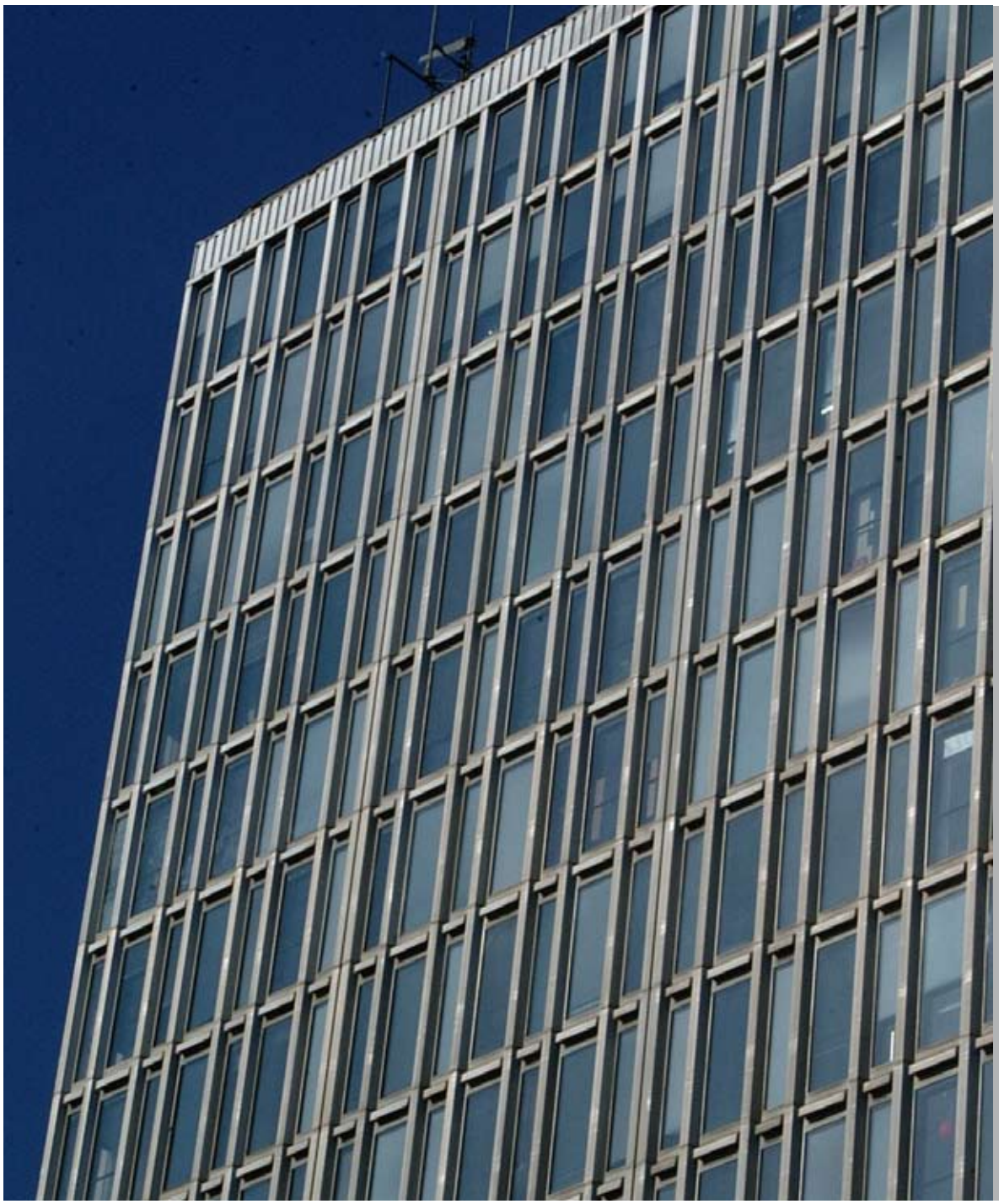
Do you want to open doors with a key or control access using a network-based access system? Do you want to integrate the alarm and manage the system via the Internet? No matter what level you choose, we can optimise your security system. With a solution from the world's leader in locks, you're guaranteed to get maximum performance. Now and in the future.

Contents

What is an access control system?

The ARX Access system is an online system with communicating system components.

Decisions to permit entry according to a schedule for the door environments are made autonomously by the Controller units and do not need to be made centrally by the system server. This means that the system can maintain the same security and functionality even in the case of a communication breakdown.



An access control system is suitable for buildings with many doors or floors or many occupants.

1. ARX Server manager – software for system communication
The ARX Server software communicates with the system's control units via the LAN. Configuration is done from the system's client software. Rules for automatic backup of the system's database can be set up from the server software's interface. Where there is no LAN, communication can be made via modem.

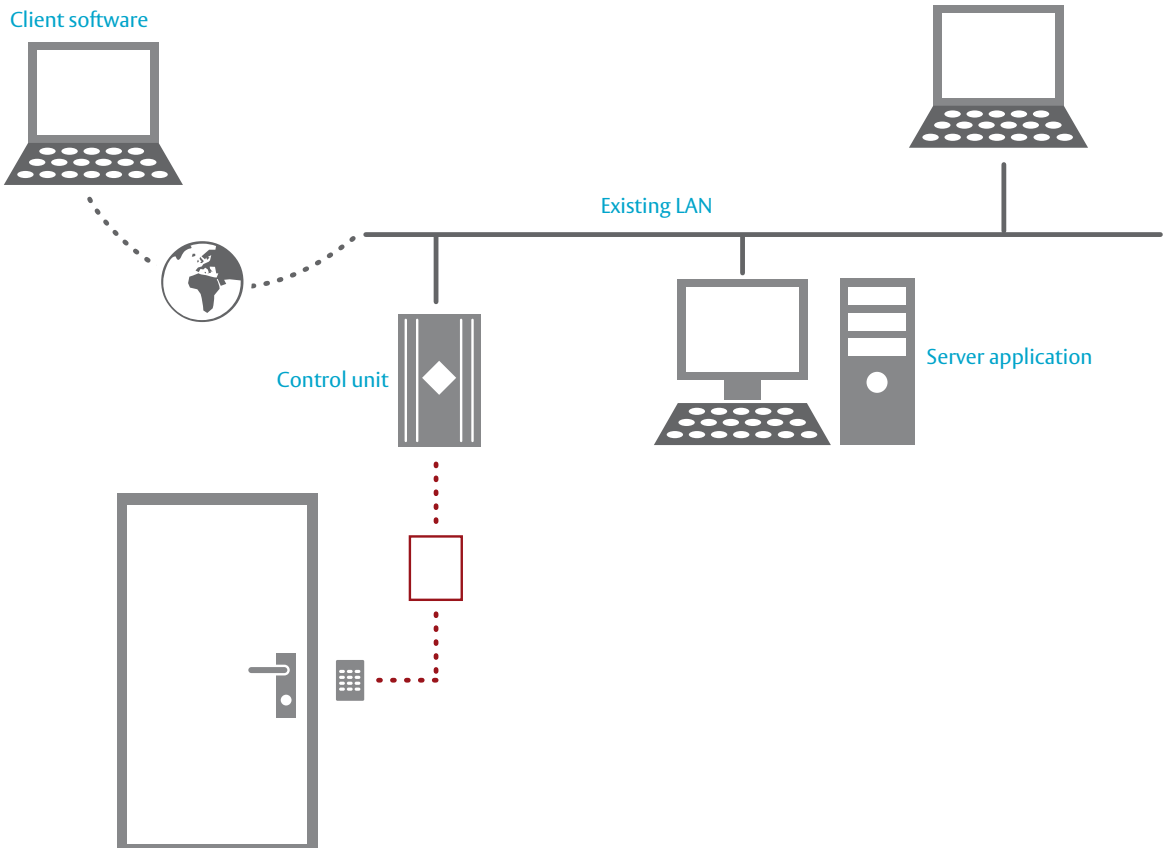
2. ARX client software for configuration and administration
All configuration and administration of the system is done in the ARX client software. It consists of a graphical user interface that is easy to adapt for different types of system operators. The client software can be installed on several clients in the network. Depending on the customer's needs. Cliens can also be connected our internet.

3. Where the decisions are made
The Controller units in an ARX Access system are connected to the existing LAN and thus have a secure link to the server. The ARX control units work autonomously, which means that all decisions concerning access, and the security level of the door environment, are made locally. The advantage of this is that even in the case of a communication breakdown, the system can still continue to function reliably. To be able to store a large number of events, cards and schedules, each ARX control unit has a large memory capacity.

Each door environment is connected to the ARX control unit via 4 wires. In order for the system to offer reliable installation and to make it possible to locate all control units in one room fitted with an alarm, the cable length can be up to 500 metres between the control unit and the door control unit. This also simplifies service and maintenance of the access system.

4. Door control unit
The door control unit (DAC) is a terminal block between the door's components and the control unit. In the DAC electric locks, door automatics, card readers, exit buttons and alarm contacts can be connected. An advantage of combining an ASSA motor lock with the ARX Access system is that they can utilize the same DAC, thus reducing the number of components in the door environment.

5. Readers
ASSA offers a large range of readers. They are designed to fit a variety of environments and the needs of different customers in terms of security and function. Proximity card readers are the most common today, since they offer high security in combination with convenience.



What solutions does an access system offer?

An access system helps you control access to and determine security levels in your building.

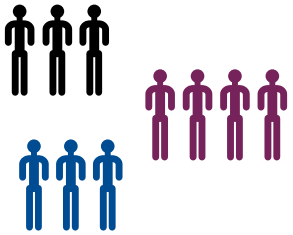
To make an accurate assessment of your company's or organisation's security needs, you should ask the following questions:

- Who?
- Where?
- When?
- How?

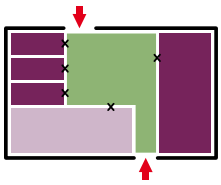
When these questions have been answered, you should have a good picture of how to design a good security solution.

Who?

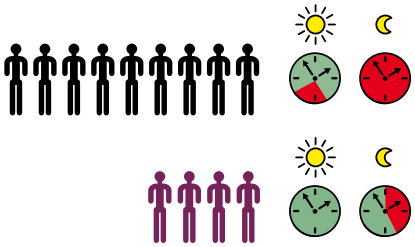
Who is to have access to the building? And who is to be denied access?
One of the advantages of an access system is being able to manage users and their access rights. ARX Access systems can easily manage large and small groups of staff where the individuals change frequently. Put simply, you can grant access to authorised staff and shut out others. In an online access system, the administrator's changes have immediate effect in the door environment.



Where?
In an access system, the building can be divided into different areas/doors to which different groups can be granted access. The security levels for each of the areas/doors are also configured in the system.

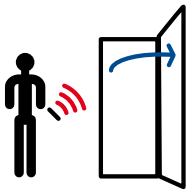


When?
The security level for the door environments and when staff are to be permitted access varies depending on the time of day and day of the week. The access system uses schedules for the days, weeks and months. These schedules determine when different groups will be permitted entry. For example, office staff can be permitted access on weekdays during office hours (7 am to 6 pm), while cleaning staff are only permitted access on Wednesdays 1-5 pm.



How?
How relates to how, or with what, the person is to identify themselves. Today there are different types of code credentials. The most common are proximity cards and tags. A reader can read the card or tag at a short or long distance. The code carrier can be in the form of an ID card or a small tag on a key ring.

For example, the access system can determine that everyone passing through the main entrance (with high security level) must present their card/tag and enter a PIN. However to pass the door between two departments requires only presentation of the card/tag to the reader (lower security level).



A safer, more secure workplace for all

A person who feels safe and secure in their workplace will do a better job. The ARX Access system can make your organisation more efficient, which makes things easier and simpler for your staff daily, and gives them a safer and more secure workplace.

Read more on the following pages about what an investment in an ARX Access system could mean for your company.

A person who feels safe and secure in their workplace will do a better job. Many people find that they feel safer knowing that if their card or tag is lost, it can be blocked in a matter of seconds.

Below are some examples that demonstrate better safety and security for the daily user:

- Trespassers cannot get into the workplace.
- If I lose my card, it can be blocked in a matter of seconds.
- If I come first to my workplace, the alarm is automatically switched off when I use my card to enter the building.
- In case of a power failure, the doors do not lock. The card readers have their own battery backup power supply.
- All events are also logged in a log file.

It's important that a security solution is not experienced by your staff as burden. An online access system that is managed from one place in realtime has many advantages for both users and administrators.

Easy opening
When a reader identifies a valid card, the door opens with an automatic door opener. The reader can also identify a person's card/tag at a distance.

The proximity reader and automatic door opening mean that your staff don't need to drop what they have in their hands to pass through a door. The corridor doors in a hospital open in good time before beds, wheelchairs, and so on, are rolled through.

More functions with the one card/tag
The ARX Access system doesn't just open doors. Personnel can even book rooms via readers or the Internet. Everything is registered and controlled by the access system. In other words, activities in day-to-day operations can be facilitated by the ARX Access system.

The ARX Access system prevents false alarms due to negligence or carelessness. The ARX Access system automatically shuts down the intruder alarm when the first authorised person enters the workplace.

Security solutions should not present an obstacle to the user. Reliable identification and rapid door opening can mean a lot for daytoday operations.

The ARX Access system can also respond to tags on your car that open the garage door for you.

Better service from one place

The ARX Access system gives administrators a lot of flexibility. This is due primarily to two fundamental functions, a user-friendly interface and the way the system is constructed. The ARX Access system allows the administrator to provide better service in many ways.

As the administrator for your company's security solutions, you will appreciate the flexibility of an ARX Access system. Changes are effected in realtime. All you need is access to the Internet

Cards, tags or electronic keys – all can be managed using the ARX Access system.

Easy management means better service
The software comprises a modern, userfriendly interface that can be easily adapted to the needs of different users. The most common functions, such as inhibiting or adding cards, changing access rights and presentation of events are functions that are presented clearly and can be easily managed by the administrator.

You can also make subdivisions so that where there are several administrators for the system, they can be given access to different parts of the information. A building housing several companies can thus share a common access system, but subdivide it into parts dedicated to each company. Then each operator only has access to his/her part of the building.

Correct information immediately
An ARX Access system can be connected directly to the building's own data network. When the administrator changes an access or inhibits a card, all the doors receive this information immediately.

Geographic possibilities
The administrator can supervise/manage buildings with a wide geographical distribution. An administrator at the company's head office can thus manage all the company's branch offices efficiently from the same place. This saves both time and resources.

Being online creates options for more functions
The direct link between the administrator and the door environments also means that a door can be opened directly from the software. With additional partner systems, the intruder alarm can be turned on or off and CCTV images can be displayed in separate interfaces at other locations.

What happened and when?
All events in the door environment, such as valid access and unauthorised attempts at entry are logged. They can then be displayed fast and easily in a log. This means that the administrator can search for individual events at a specific door or the activities in the building of a certain person.

All users can be given the option to book rooms such as conference rooms or the laundry room. The administrator can easily control when the room can be booked.

The administrator uses the ARX Client software to perform routine tasks. A card can be inhibited easily and within seconds this information is at each door's cardreader.

Modern technology from door to computer

The ARX Access system has components that have been developed to fit one another. Developed by ASSA, one of Sweden's biggest suppliers of security solutions with their own test lab and dealer and distributor training.

Logical interfaces, reliable products and easy distribution. The ARX is designed and developed to suit today's and tomorrow's electronic solutions.

The demands made on installation engineers these days are high. From having simply fitted locks in the past, the installation engineer today must know about electrical installations, programming and data networks. ASSA offers all its dealers training in all its system.

A security solution is most often seen from the user's point of view, but it is just as important that the product and software are cost-effective to install, commission and maintain.

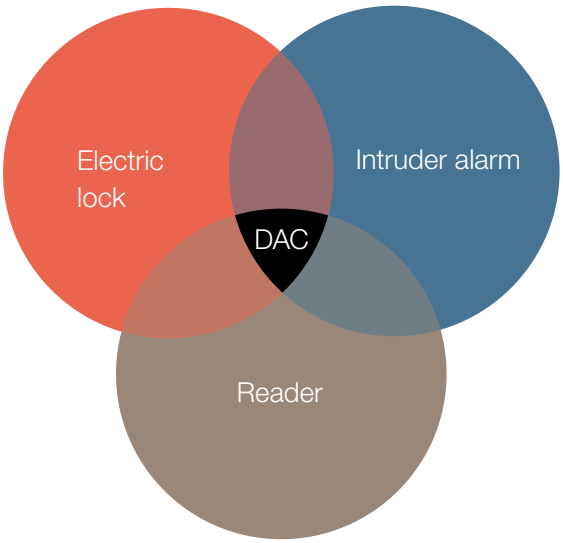
Smart products for both users and the installation engineer
The ARX Access system's controller units are plug and play. The units are self-configuring, that is, they find their own place in the network when they are connected. They work completely independently and continue to control the door environments even if contact with the system server is lost. The design of ARX system's thus means that the installation time and risk of problems is reduced, while commissioning the system is simplified.

Smart design solutions for both software and hardware
The software is updated centrally in the system. No physical products need to be changed when new software or expansions are installed. Some readers can also easily be upgraded from offline to online readers and thus become part of the access system.

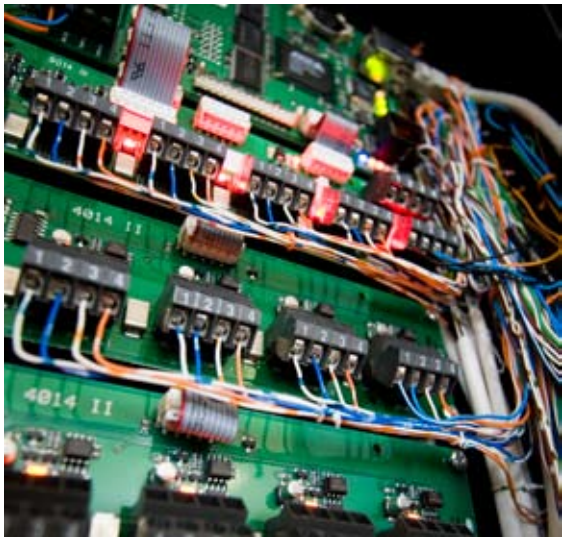
In each door environment there is an intelligent terminal block (DAC) to which the electric lock, reader, exit button and door monitor contact are connected. Since only 4 wires (two for communication and two for power supply) are needed from the door to the control unit, installation is easy and thus cost-effective.

Direct-controlled motor lock
An important advantage of the ARX Access control system is the option of integrated control by the ASSA motor lock's day and night function in the building. This function provides two alternatives:
One is that the door is opened immediately when the schedule for the setting "motor lock day/night" or the input "day/night" is activated.
Another alternative is to allow the first valid entry to control the lock. This means that the motor lock switch to day settings with the first valid entry through the door.

A supplier you can trust
As an installation engineer, it's an advantage that one supplier can offer a complete system comprising everything from hinges to software for managing the system. We maintain a continuous dialogue with our dealers and distributors to help create better solutions. We can affect everything from the production of manuals to new communication standards for door environments. You can have full confidence in us as a partner that strives for continuous improvement.



DAC – the intelligent terminal block



The control unit is connected directly to the existing LAN using a network connector.

An investment in the needs of tomorrow

A security solution often means a big investment. It is therefore important that the solution offers excellent performance and can meet your needs today and tomorrow. The dealer network, who will be responsible for installation, operation and maintenance, need to be well trained and represented throughout your country.

ASSA as your supplier offers a partner with a broad knowledge and long experience in the field of security solutions.

Welcome to ASSA.

ARX communicates via networks
The control units can be connected to the company's or buildings existing LAN. This has two major advantages, cost-effective installation of the ARX Access system, and centralised administration of a geographically distributed system. Because it is scalable, the system is also very flexible and can be expanded to your requirements.

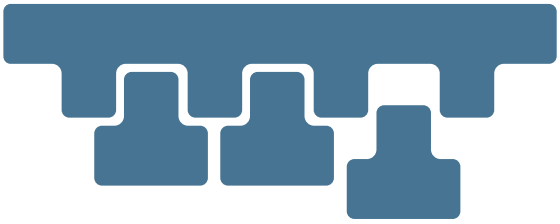
Secure means of communication
The control units in the ARX Access system communicate in a way that is unique to ASSA in the security industry, but standard in the IT industry.

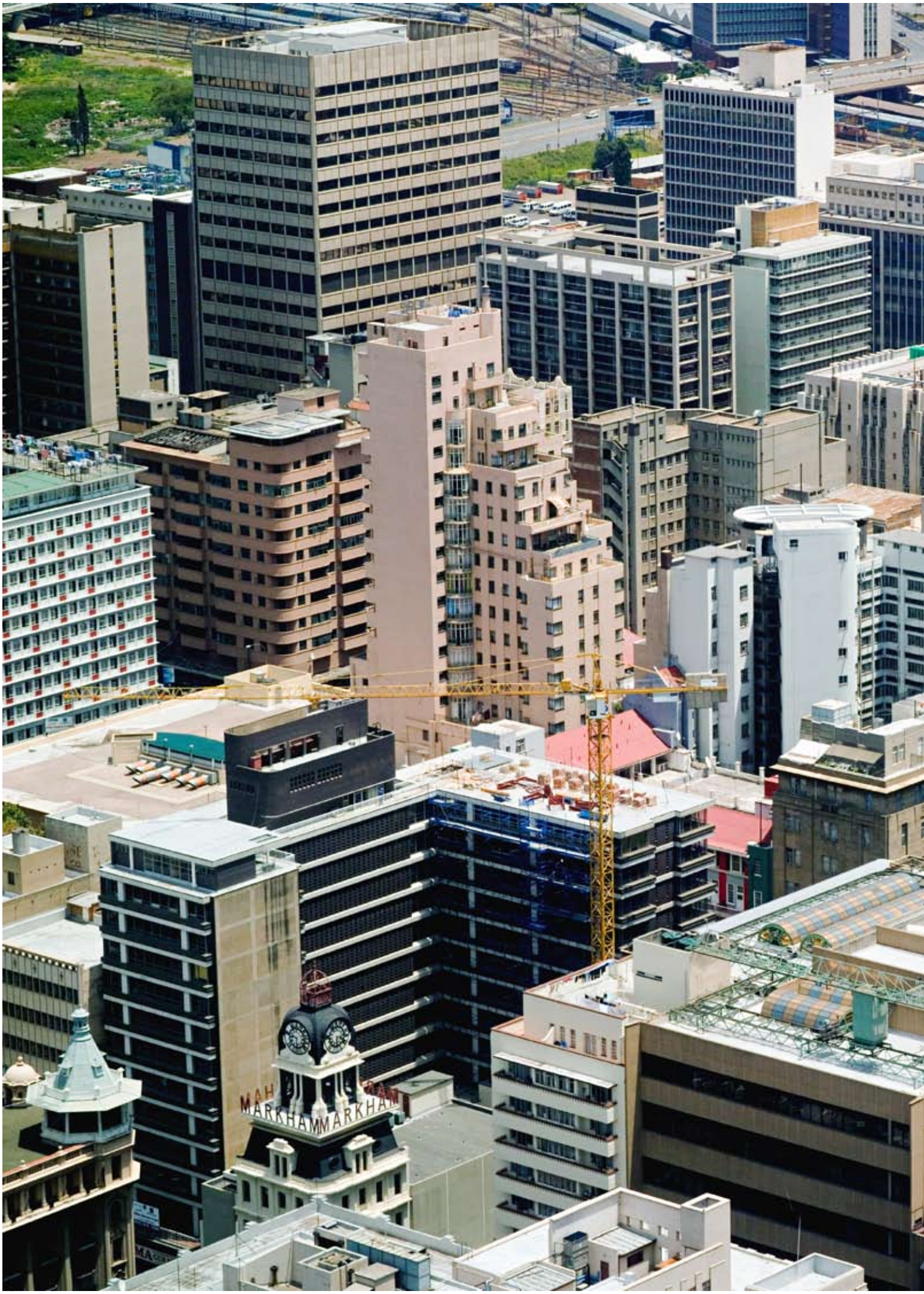
All the control units used dynamic IP addresses and automatically exchange encryption keys when information is transferred. The server in the ARX Access system and control units are addressed via DHCP in a way that is fast and secure. Integration options at no extra cost The ARX Access system was designed to be easy to add to and adapt to changes in your operations. Its modern IT structure with open and standardised interfaces is well prepared for the integration of external systems.

Technologies working together
In a building, there will be different security levels for different doors. Each activity within an organization has different needs in terms of flexibility, administration and convenience, which additionally can vary over time.

With the ARX Access system, you can tailor your security solution to achieve the best possible performance in all respects. From robust mechanical locking to advanced software integration and the latest in reader technology.

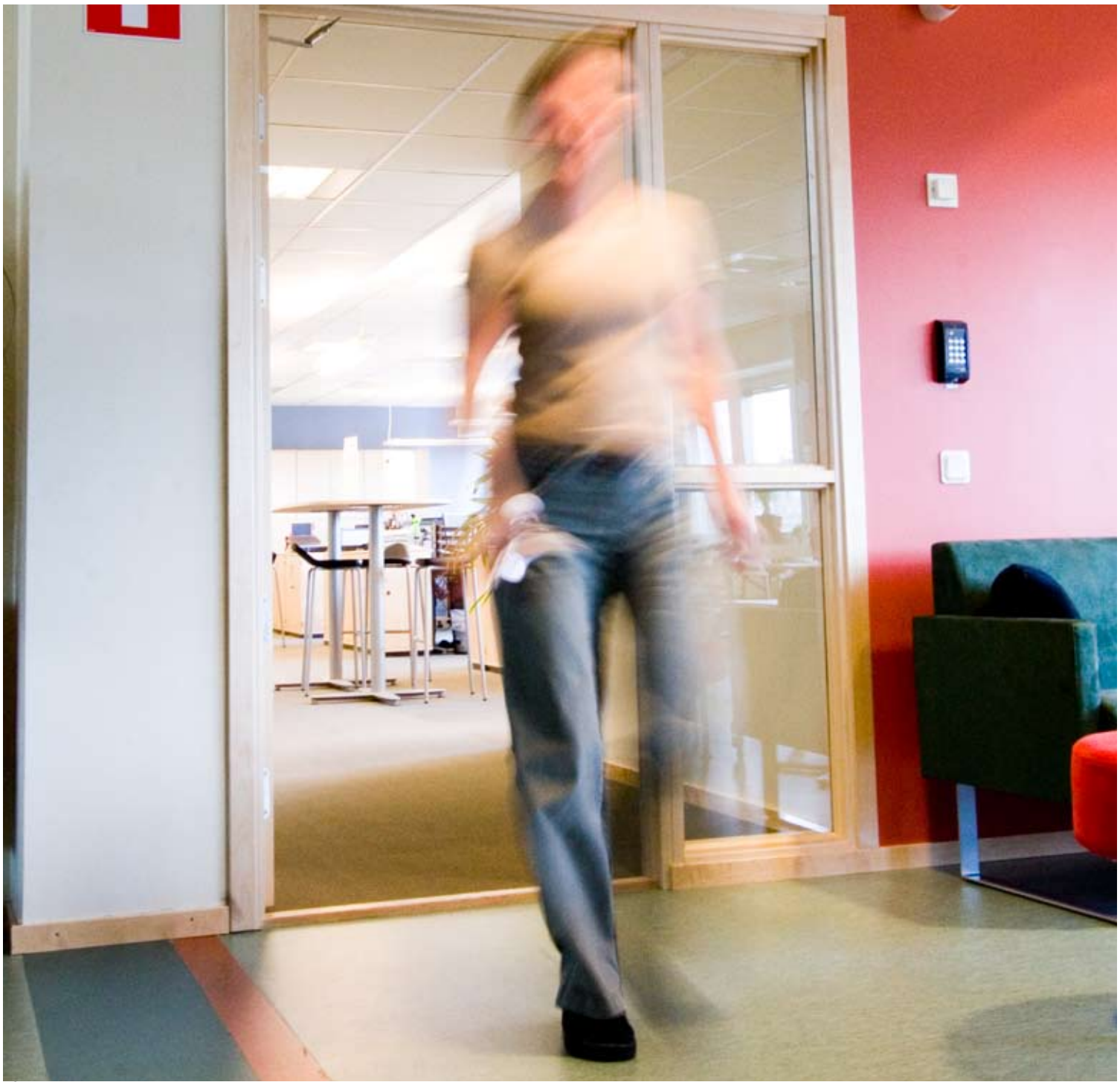
Market leader with partners
ASSA is part of the ASSA ABLOY group, the world leader in door opening solutions. Experience in developing access systems has been found within the group since the late 1970s. Its access control systems can be found today in both public and private sector buildings, as well as apartment blocks.




MARKHAM

Standard functions in ARX

The ARX Access system contains a large number of standard functions. In addition, the system can be tailored to your needs by adding optional functions to create a complete security solution for each building. An ARX Access system can also be integrated with external systems to offer further opportunities for complete solutions.



The ARX Access system includes the following standard functions:

Disabled function
With this function, you can lengthen the time for various functions for the disabled or others with special needs. For example, the door can be open for a longer time for the disabled person to pass through, or more time is allowed to deactivate the alarm on a door.

Caretaker function
With the caretaker function, a specially authorised card can reset the card reader to common code function (e.g., during the day) to facilitate entry. This function can then be deactivated either manually when the card's time schedule ends or when the automatic alarm is turned on.

Evacuation function
Even if a fire should break out and the power supply is cut off, the doors can still be opened from inside, as the readers have a separate battery backup power supply.

Fire door closure
Often there are large fire doors distributed throughout the building whose only task is to close if a fire should break out and thus contain the fire in a limited space.

Duress alarm
Many companies and organizations find peace of mind in the access system having a duress alarm function. A card holder who is being forced to open a door can enter a duress code instead of their usual PIN. The door will then open as usual but a silent alarm is sent by the access system to an alarm facility to raise the alarm.

Two-card function
This function requires that two separate and valid cards (with or without PIN-code) are needed to open a door. This function is controlled by a time schedule.

Motor lock control as part of ARX
An important part of the ARX Access system is the possibility of integrating the control of the day/night function of the building's motor locks.
This function provides two alternatives:

- The door is opened immediately when the schedule for the setting "motor lock day/night" or input "day/night" is activated.
- The motor lock switch to the day setting with the first valid access through the door.

If you enter an assault alarm code instead of a PIN, the door opens as usual, but the alarm facility will notice that something has happened and can raise the alarm.

Optional functions for ARX

In addition to the standard functions in the ARX Access system there are a number of optional functions that you can expand the system with. More functions are continuously being developed.

The anti-passback function means that cards swipe through a reader are inactivated for a set period of time so that authorised persons can not let in unauthorised persons with their valid card.

Domain function
Large companies and organisations may need to use several operators. The domain functions makes it possible to allow individual operators access only to one section of the facility. The operator can be limited to viewing and editing users, cards and access control categories, door and alarm areas and logs that belong to a certain domain.

Zone control function
With the zone control function, you can create zones and thus check where people are and how many people there are in each zone at a specific time.

Air lock
In an air lock, two or more doors are linked together to create a security sluice. The sluice function means that only one of the doors can be open at a time.

Booking via panel
The booking system consists of a booking module in the software and a physical booking panel with a proximity reader at the door. The booking module is developed to be easy to use and at the same time flexible for the administrator to configure. The booking panel has a large, clear LCD screen where selections connvinently are made in step-by-step menus. If there are many rooms that can be booked, all can be booked from the same panel. The access rights in the system determine who has the authority to book which room.

My pages – a personal web interface in ARX
Users in the ARX Access system can use a web interface of the ARX Access system called My pages via My pages the user can book rooms such as laundry room or conference rooms. My pages also contains a personal section where the user can receive messages from the administrator and inhibit or change the PIN for his/her own card.

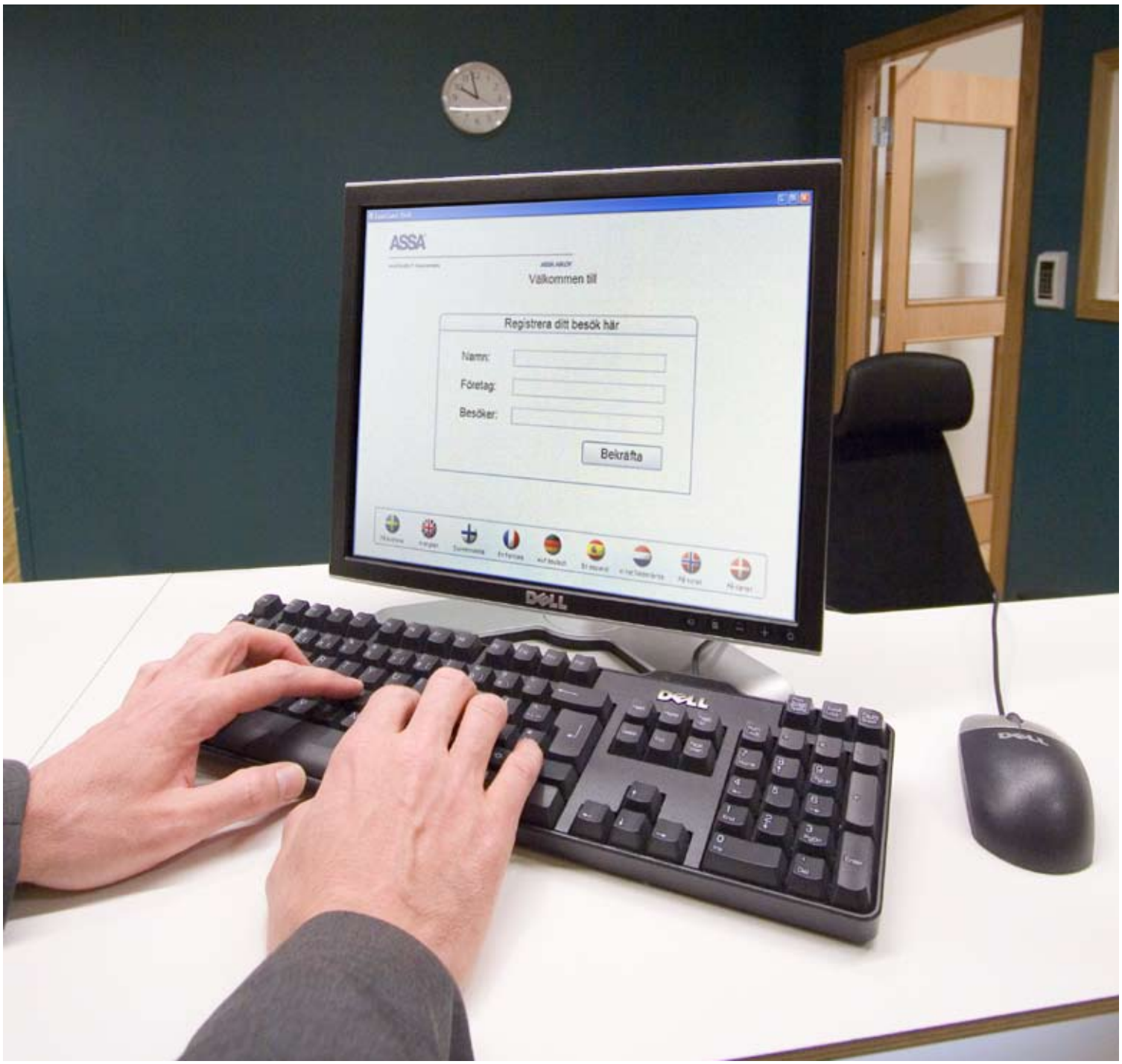
Key management using Performer
ASSA Performer key management system is available as a link to the ARX Access system. Sharing personal data and allowing mechanical keys to be allocated to individuals in the same way as cards. This allows a unique and simple management of keys and cards for the individual's right of access, online and offline in one system.

Anti-passback function
To prevent the same card from being used to open a door from the same side more than once at a time, you can add the Anti-passback function. The card is blocked in the reader for a set time after use to prevent unauthorised persons from being let in using the same card again.

Elevator function
Control of an elevator can be integrated into an ARX Access system. Access control is then automatic to each floor in the building with the card Sreader and the keypad of the elevator.

Partner systems in ARX

ARX Access system offers a standardised interface for integration with other systems. With an XML protocol, you can import and export different types of system data such as personal data, card data and activities. Some of the partner systems that can be integrated with the ARX Access system via an XML protocol are Visitor registration, Graphic presentation, Photo ID management, Municipal facilities booking and Intruder alarms.



Visitor registration
The partner system EC Visit is a complete system for registering visitors, that is installed in the company's reception.

When the visitor is registered in the system, a visitor's badge is printed out with their name, the host and the date. The visitor's badge can also be made valid for access. Each visitor can be given different kinds of schedule-controlled accesses to different doors.

The receptionist has different templates to choose from which makes registration fast and easy.
The system comprises three parts:
1. Reception module
2. Visitor module
3. Advance booking via the intranet

Graphical presentation
The partner system Noctu is a monitoring system with a graphical user interface which, when combined with the ARX Access system and Galaxy Intruder Alarm, offers a complete, integrated security solution. Noctu presents door environments and different types of alarm detectors as icons on the building's floor plans. All icons are designed to be easily comprehensible and have colour codes with explanatory texts.
Other functions that the user interfaces presents in a simple, easy-to-understand way are:
- Alarm management with acknowledgements and actions
- CCTV camera control
- Alarm sections (switching on and off)

In Noctu, even large systems with many doors, functions and/or users are easy to manage.

Photo ID management
CardPro Photo ID system is a software for producing ID cards and access cards. Using this software, the access card is designed with a facial photo, background images, logotypes, personal and card details.

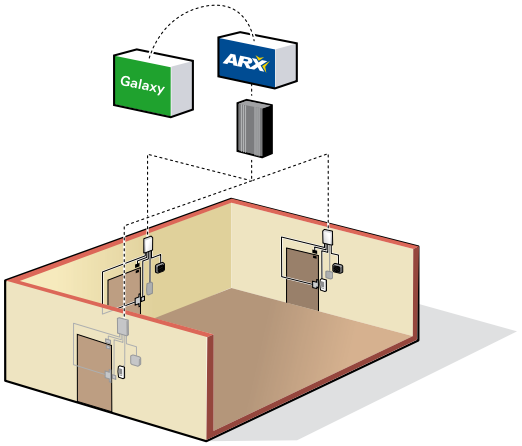
CardPro is integrated with the ARX Access system using the XML interface integration module, ARX Import/Export through the integration card and personal details entered in CardPro are transferred to the ARX database and vice-versa.

Municipal facilities booking
The market's leading and biggest municipal facilities booking systems can be integrated with the ARX Access system. With these booking systems, the general public, organisations and associations, can get easy access to sporting facilities, class-rooms, and other facilities that can be booked for use.

Book the gym hall via the Internet
The booking system can directly activate a booking and transfer the information which ensures that the right person can utilise the booked room or space – at the right time.

Better service and lower costs
The function in the different booking systems means that vandalism is reduced in facilities used by many people from different organisations and companies. The owner of the system and the facilities achieve lower operating costs and the users get a better service.

Easy booking of sporting facilities, for example.



Intruder alarm
The ARX Access system and Galaxy as two of the leaders in their respective markets. The biggest benefit of an ARX/Galaxy integration is that it is effected via both software and hardware, which gives time and cost savings for all who manage and invest in the system.

Same cable and same product
Buildings that have an access system installed can very easily install an intruder alarm since both systems use the same cable and product in the door environment. The access system's door monitor contact indicates an alarm and the alarm siren and advance warning buzzer are connected directly to the control unit of the access system. This means big time savings during installation. In addition, the investment cost is reduced since most of the products are "shared" by the two systems.

The physical connection between the ARX and Galaxy is via a serial interface, RS485. This makes the installation very easy and instead of needing to link together the system via I/Os, all alarm controls are effected via the serial connection.

Easy installation of intruder alarm
The user functions for both the systems are programmed using the ARX software. The user of the system gets one system with the performance of two: intruder alarm and access system in one.

Easy administration
The system is flexible to manage as you can freely configure which card readers are permitted to bypass which alarm zones. Much of the configuration of the system is done from one and the same user interface, which further simplifies administration.

The integration between the ARX Access system and Galaxy Intruder Alarm provides a big benefit to the user. If you are the first at work, you automatically shut off the alarm when you enter you PIN to enter the building. This radically reduces the number of false alarms due to incorrect usage of the system.

Cards and tags

A card or a tag can support different types of reader technologies, that is, how a reader determines whether a card/tag is valid or not. Sometimes several reader technologies can fit on to one card.

Some cards can hold large amounts of data, some only a number series that is unique to the card. Your security solution can open doors for additional functions depending on which card or code carrier you choose.

Credentials

Touch cards
Magnetic stripe cards have information stored on the magnetic stripe on the reverse side of the card. The card is passed through a slit where a reader head reads the magnetic stripe on the card. This technology has been around for a long time and is very widespread on the market. Other examples of cards with magnetic stripes are direct debit cards for banks.

Magnetic stripe cards are often being replaced today by proximity cards. Replacing old readers with proximity readers is easy, since no new cables need to be installed and no new configuration of the software is required. If you only replace some readers in a building, combination-cards can be used, which can be read by both magnetic stripe and proximity readers.

Proximity cards and tags
Proximity cards are placed in front of the reader to read the information on them. The card can also be combined with the company ID card, which can make life easier for the user. Credentials in the form of drop-shaped tags are also available, which functions in the same way as proximity cards. Their size, shape and durable construction mean that they can easily be placed on a key ring. ASSA offers cards for proximity technology EM4102.

Contactless smartcards
Contactless smartcards are available in two different technologies: Mifare and IClass.

Mifare is a contactless reader tecnology with read and write possibilities often called "smart card". The communication is encrypted (48 bit) so that data on the code carrier only can be read by a reader with matching encryption key. ASSA offers as standard Mifare cards and tags with a storage capacity of 1kBit in 16 optional programmable sectors. The reader can also handle cards with 4 kBit and 32 sectors. The Access system uses one sector to store system and card number. Other sectors can be used for other purposes, for example storage of finger print for biometry readers, or debit function for canteen and vending machines.

Vehicle tags
For easy and secure entry of vehicles, there are special robust tags that can be placed on vehicles. They are used in combination with long range readers, which mean that authorisation to enter can be read from a distance of several metres.

If additional security is required, the driver's personal card can be linked to a booster that sends information about the driver to the reader. This means that the driver also has to have access, not only the vehicle.

The reading distance for ASSA's proximity card readers is 5–10 cm.

Easy, lightweight and convenient!

A reader for every door

There is a large range of readers to choose from depending on the security level required, the choice of technology and your budget. Depending on security requirements, you can choose either compact or divided mounting gives a more secure solution than compact mounting. However divided mounting requires more parts, which in turn require more time and cost in the installation. There fore is more common where high security is required, but that compact mounting is more common on internal doors.

Reader with or without keypad
The range of readers is large and there are readers with or without keypads, for both indoor and exposed outdoor environments. The readers have a robust and discreet design and are available with white or black housing.

The readers are available for proximity technology EM4102 and contactless smartcard technology Mifare serial number or sector.

Door-mounted readers
Door-Leaf-Readers are available for mounting directly on the door, so called door leaf readers. These can be combined with a choice of door handles to provide a stylistically harmonious installation on internal doors in office environments and apartment blocks.

The reader and the lock housing are mounted easily in the door and no extra holes need to be drilled. Since the reader is compact with built-in DAC functionality, it can be connected directly to the control unit, thus giving a cost-effective installation.

Readers for longer distances
Long range readers are used for reading credentials at greater distances, for example, garage entries. The reader receives a code sent by the transmitter part which is mounted in the vehicle. The driver initiates the identification process by simply pressing a button!

Reader and entry phone in one
Apartment blocks and companies often have problems with trespassers entering their buildings. If an entry phone is connected to the entrance, you can easily control who can enter depending on the time of day. The entry phone can then be linked to a switchboard in a company or directly to the residents in an apartment block.

The telephone can be used with IP telephony or the analogue telecommunications network via a converter. The entry phone has a clear display showing name and number. There is also the option of a built-in proximity card reader for the greatest freedom and convenience of the residents or employees.

Readers with a booking panel
Common areas such as the laundry room in an apartment block or conference rooms in an office often need a simple system for managing bookings. In the ARX Access system, you can book a conference room or the laundry room at the door.

Online cylinder
The online cylinder Twintronic can be included in an ARX Access system in the same way as the readers. Since the Twintronic's reader part is included as part of the cylinder, it is suitable for environments where you do not want readers mounted on the wall. This solution is excellent for historical buildings where a discreet but still modern security solution is desirable.

PCR-40

6480VP

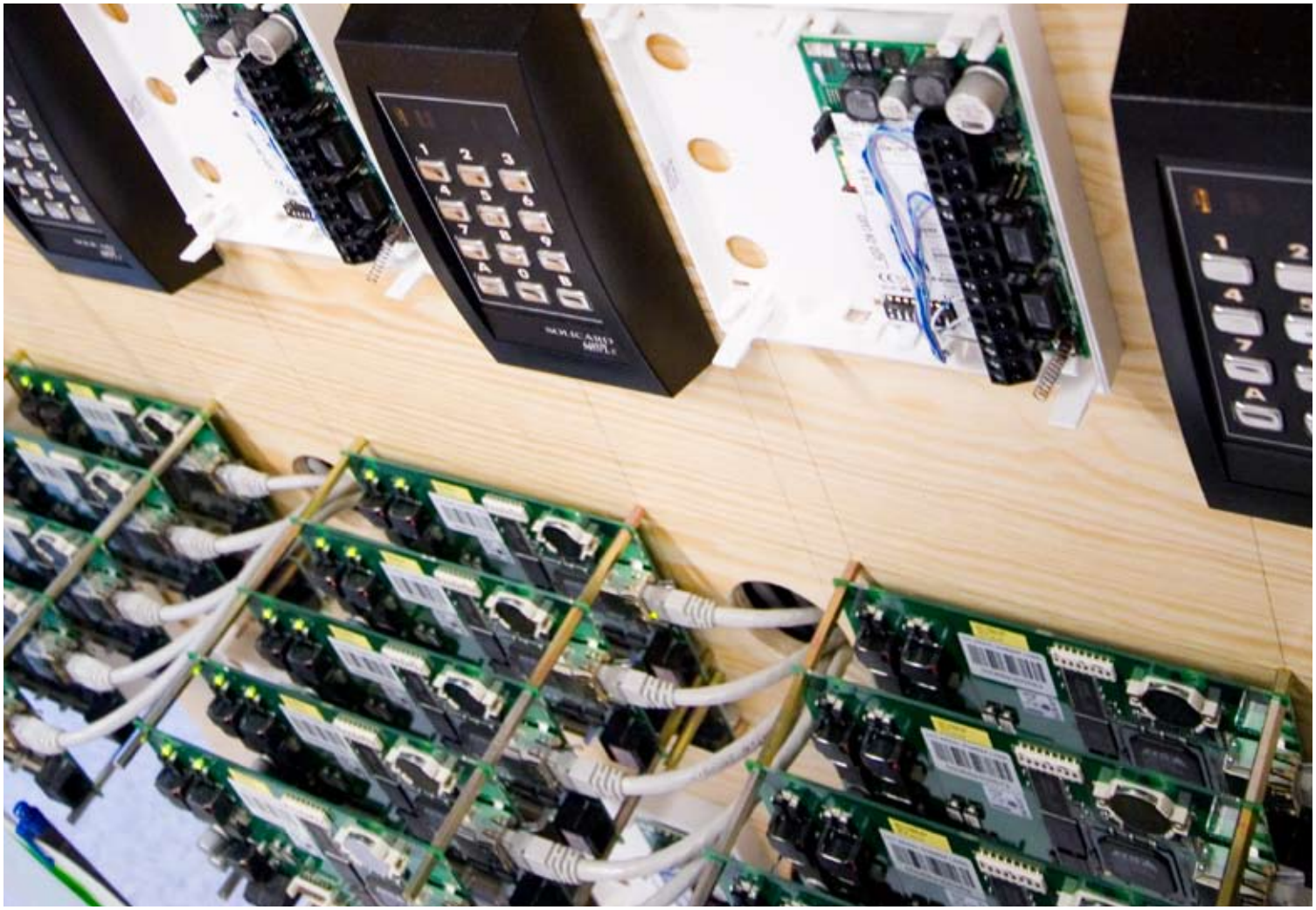
DBL-34

ECP-30

Developed for industry standards

Other access systems on the market are often proprietory, closed systems. This means that it can be difficult and costly to integrate them with other systems. The ARX Access system is based on industry standards such as Java, PKI/SSL, SQL and XML.

Beside the advantages of this for simplifying integration with external systems, it is easy to manage and expand, since there are good development tools available that do not require specialist knowledge.



Glossary

Structured Query Language (SQL)
Standardised query language for working with databases. SQL is used to perform searches in relational databases and to edit and update them.

Public Key Infrastructure (PKI)
Infrastructure for encryption with open keys. Systems that, with the help of digital certificates, make it possible to check that a certain open key really belongs to the alleged owner. This key handling and identification is done automatically between the ARX server and the control units.

Secure Socket Layer (SSL)
Means that you place the applications that handle security in a particular layer between the application (e.g. the ARX system) and the Internet (TCP/IP). Dynamic Host Configuration Protocol (DHCP) Protocol that automatically allocates IP addresses to computers and the ARX control units when they are connected to the network.

Java
Programming language developed for writing programs that can be downloaded and executed.

These programs work independent of the type of computer and operating system, and are the programming languages that the ARX PC software are written in.

Linux
Operating system for the embedded systems used in the ARX control units.

eXtensible Mark-up Language (XML)
A way of encoding web pages and other information as text documents and databases. Used during the importing and exporting of data such as personal data registers to and from ARX.

Virtual Private Network (VPN)
A technology for creating a secure communication channel between two nodes using strong encryption. The encryption in ARX is instead built into the system, which means that third party products that offer this technology are not needed.

ASSA AB
P.O. Box 371
SE-631 05 Eskilstuna
Sweden

phone +46 (0)16 17 70 00
fax +46 (0)16 17 70 49

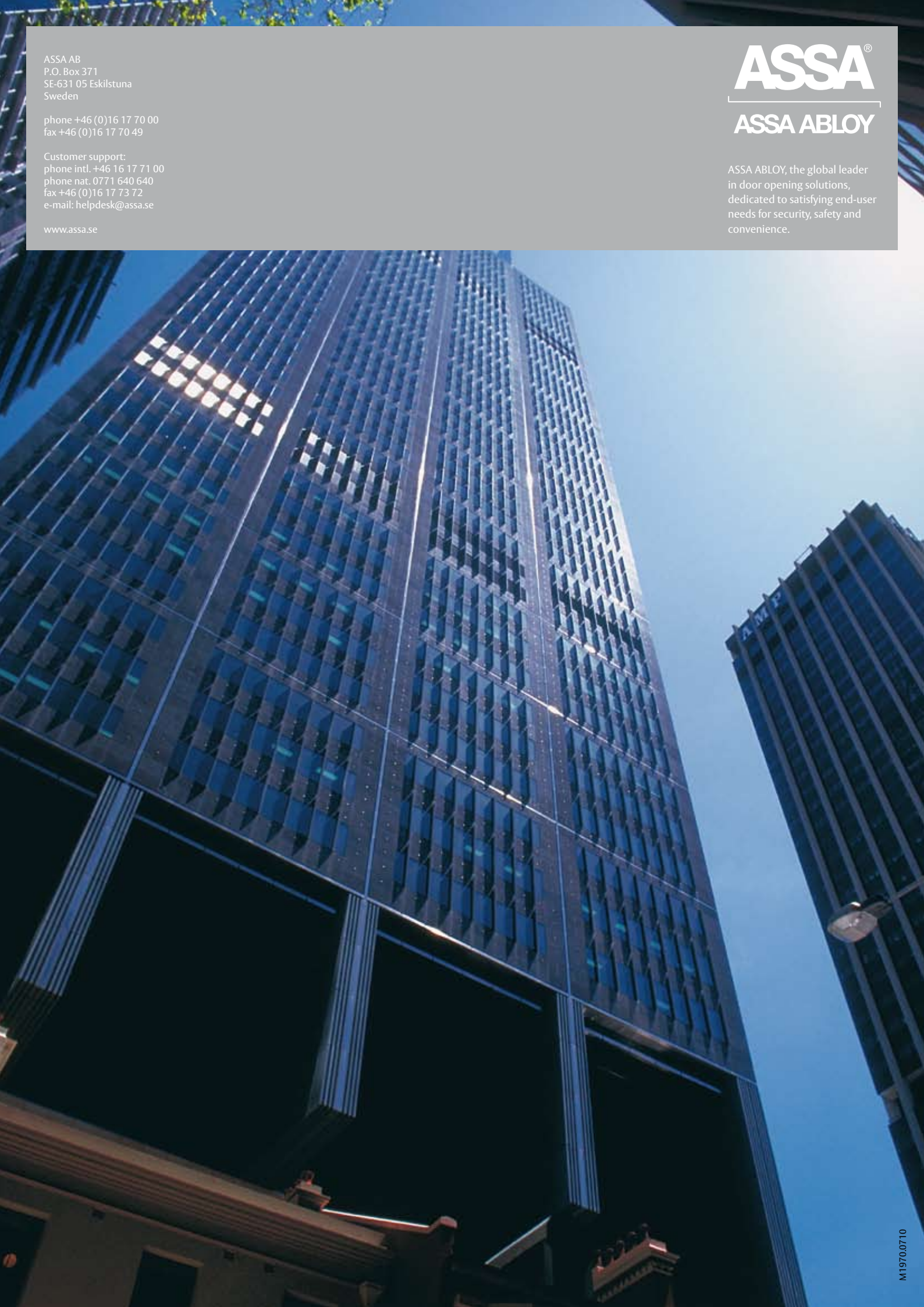
Customer support:
phone intl. +46 16 17 71 00
phone nat. 0771 640 640
fax +46 (0)16 17 73 72
e-mail: helpdesk@assa.se

www.assa.se

ASSA®

ASSA ABLOY

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



M1970.0710