

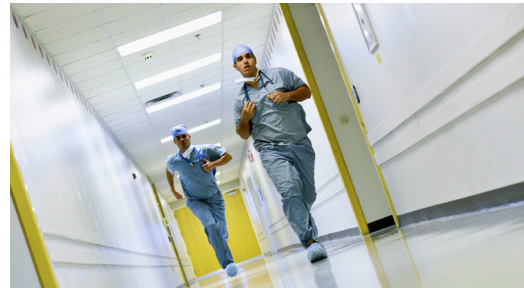


ARX Security system

ASSA ABLOY
Opening Solutions

The complete access control and alarm system

The global leader in
door opening solutions



ASSA ABLOY ARX a security system with access control and alarm

When you choose to invest in an access control system, you shouldn't feel tied down to one solution – you should be able to grow in your system, smoothly and easily, fully assured that it is future-safe.

With ARX, you get an advanced, high-security online access control system combined with the convenience of offline readers. We call that adapted security. The ideal security on each door gives you an optimal security system that also is cost-effective.

ARX security system with the combination of alarm and access control creates safety and security in most types of facilities, from small up to large and complex, geographically dispersed facilities.

The card readers in ARX can be used for alarm management and access control which restricts the number of access control panels and door control units. This entails a cost effective installation and with minimal wiring.

The access control panel have a communication method that is unique in the security industry, but long proven in the world of IT. All access control panels use dynamic IP addresses, communicate using the SSL/TLS protocol, and automatically switch to customer-specific crypto keys in

connection with the installation. The method is comparable to how banks communicate. This means that there is no security risk in installing ARX in a company's or property's existing network, making it a cost-effective solution since it doesn't require a unique network for the security system. The software in the access control panels is also signed, and cannot be replaced with manipulated or unsigned software.

The access control panel automatically makes decisions such as scheduled access for door environments. This means that the system can maintain the same security and functionality even when the communications or servers are down.

The user interface is very user-friendly. All administration for the access control and alarm system is handled from one and the same system, which also provides security for the users. The ARX software consists of modules, so you never have to install more functions than you need. Just choose the functions that your business requires. If you later on will and need additional functionality, it's easy to add new features as you go along.

When choosing ARX security system, you get a smart, flexible overall solution for an access control and alarm system.

ASSA ABLOY ARX – an open system that creates many opportunities and is a good investment

ARX Security System combines convenience, safety and transparency. Our customers have highlighted just transparency as very important factor when they have chosen ARX security system. ARX can easily be integrated with superior graphical presentation, booking, card manufac-

turing, personnel system and others. ARX is a system that is available for external applications through a secure, open interface. Examples of integrations are ARX visitor system, Galaxy burglar alarm and card manufacturing system.

Extended warranty for 5 years from the date of manufacture applies to products that are part of the ARX system and manufactured by ASSA ABLOY.

The 5 year warranty applies to products marked with code 5 in the price list and delivered from 2019-01-01.





Correct security level on each door with one of the markets widest range of readers

With ASSA ABLOY's wide range of readers, you can always get a customized and cost effective solution for all your doors according to your safety and convenience preferences.

Many times installation starts with securing the outer doors, it provides security that no unauthorized can access the premises when the outer doors is locked and alarmed.

The ASSA ABLOY offer:

- Online readers with split installation – with highest security
- Wireless online readers – high security, cost effective and a convenient solution
- Offline readers – cost effective with high security for example, sheds, storage area or garages

In addition, companies often need to enhance security in the daytime on interior doors.

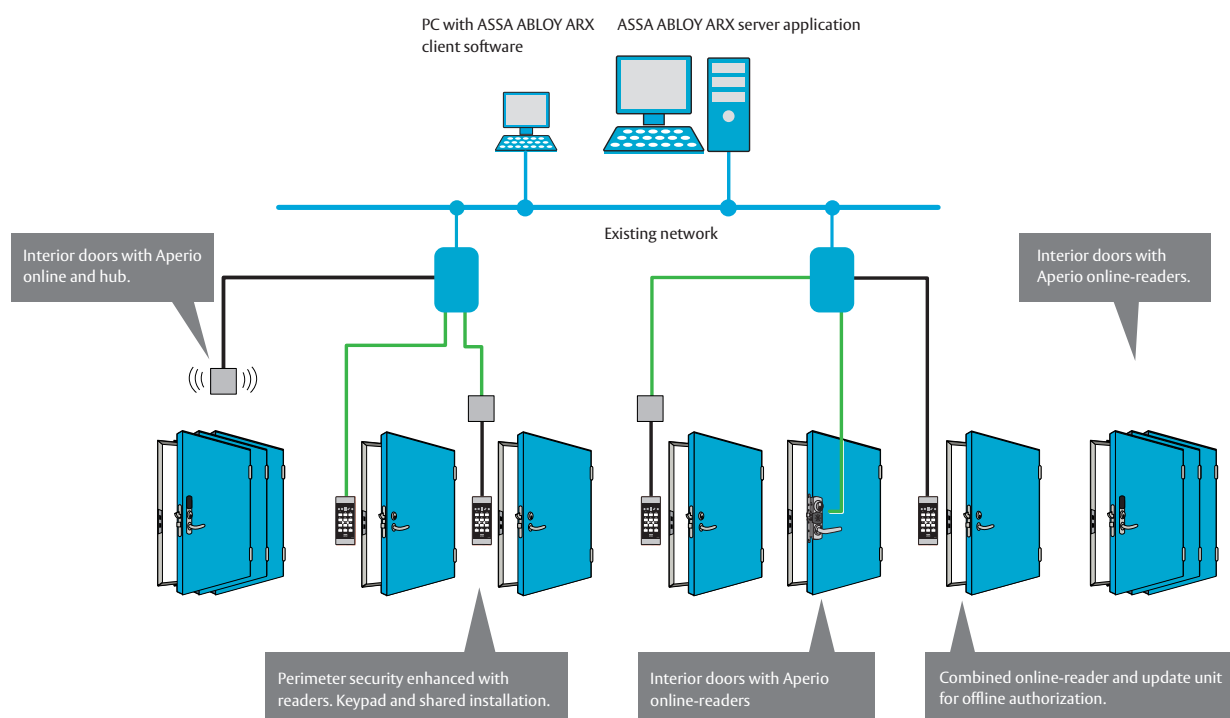
ASSA ABLOY cost-efficient solutions:

- Online readers with compact or split installation – depending on desired security level

- Wireless online readers – a convenient solution with real time log in
- Wired online leaf readers – to be used in harsh environments
- Offline readers – high convenience and without wiring

Online readers controls the electric lock in the door and maintain continuous real-time contact with the ARX software. This allows you to immediately block a card or see who passed as well as directly read the log files. The choice of lock is determined based on the security requirements.

In an offline reader, all opening decisions are taken in each reader. They have no direct contact with ARX software. Where a specific person should have access and at what time, is programmed in the selected sectors, when the card or tag is shown for a combined online reader and updating unit. The limited duration and validation at offline permissions, means that security can easily be maintained. Log files can easily be downloaded directly from the reader.



Functional diagram/example of system structure



ASSA ABLOY Pando™ Secure – reader for split installation



ASSA ABLOY Pando™ Display – reader and control panel for split installation



ASSA ABLOY Pando™ Mini – reader and control panel for split installation

Online proximity reader that connects to a door control unit, providing the greatest possible security.

- The readers supports 13.56 MHz card technologies (MIFARE Classic, MIFARE DESFire, MIFARE Plus, iCLASS and SEOS)
- Can read two simultaneous card technologies
- Built-in support for Hi-O
- Support for ASSA ABLOY ARX High Secure Card

- Optimized reading distance for cards and tags
- ASSA ABLOY Pando Secure and ASSA ABLOY Pando Mini are delivered with black cover and ASSA ABLOY Pando Display with white cover.
- Pando Display can also be used as a control panel for controlling alarm functions and also has support for ASSA ABLOY SIO-communication (RS485)



Color choice for all Pando readers



Aperio™ Ecsution with keypad

On line proximity reader with wireless communication

- Available for MIFARE Classic, MIFARE DESFire or EM card technologies
- Supports ARX High Security Card on line
- Installs in existing slots in the door and controls a mechanical lock case
- Indicates opening, battery warnings, etc. via light and audio signals

Aperio™ Ecsution

On line / off line proximity reader with wireless communication

- Available for MIFARE Classic, MIFARE DESFire or EM card technologies
- Supports ARX High Security Card on line
- Installs in existing slots in the door and controls a mechanical lock case
- Indicates opening, battery warnings, etc. via light and audio signals



Aperio® H100 wireless access control door handle

On line / off line proximity reader with wireless communication

- MIFARE Classic, MIFARE DESFire card technologies
- Supports ARX High Security Card on line
- Installs in existing slots in the door and controls a mechanical lock case
- Indicates opening, battery warnings, etc. via light and audio signals





Escutcheon for split mounting installation

Online proximity reader with built-in door control unit and lock case.

- Online proximity reader with built-in door control unit and lock case
- Supports MIFARE Classic or EM card technologies
- Suitable for door environments where a wall-mounted reader is not wanted, for aesthetic or technical reasons
- Provides relatively high security, as all intelligence is mounted on the inside of the door
- Connects directly to a central unit

Offline in ARX with MIFARE Classic or MIFARE DESFire (OSS)



Update device for MIFARE offline in ASSA ABLOY ARX

- Connects directly to the network via LCU9101
- The device can either be used to open a door, or both open a door and write the changes in the offline permission on the user card



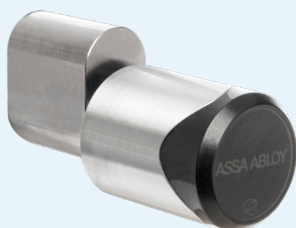
Update device for DESFire offline in ASSA ABLOY ARX

- Connects directly to the network via LCU9101
- The device can either be used to open a door, or both open a door and write the changes in the offline permission for the user card

Aperio™ electronic cylinder

Electronic proximity cylinder.

- Available for MIFARE Classic, MIFARE DESFire or EM card technologies
- Replaces the existing cylinder and controls a mechanical lock case
- Depending on the lock case selected, the door locks automatically or manually
- Also suitable for lockers, vehicles, etc
- Indicates opening, battery warnings, etc via light and audio signals



Entry phone

A user-friendly entry phone with built-in proximity reader.

- Can also be used as a code lock
- The entry phone supports MIFARE Classic or EM card technologies
- A list of residents/employees can be viewed on the display
- All administration is done in the ASSA ARX software

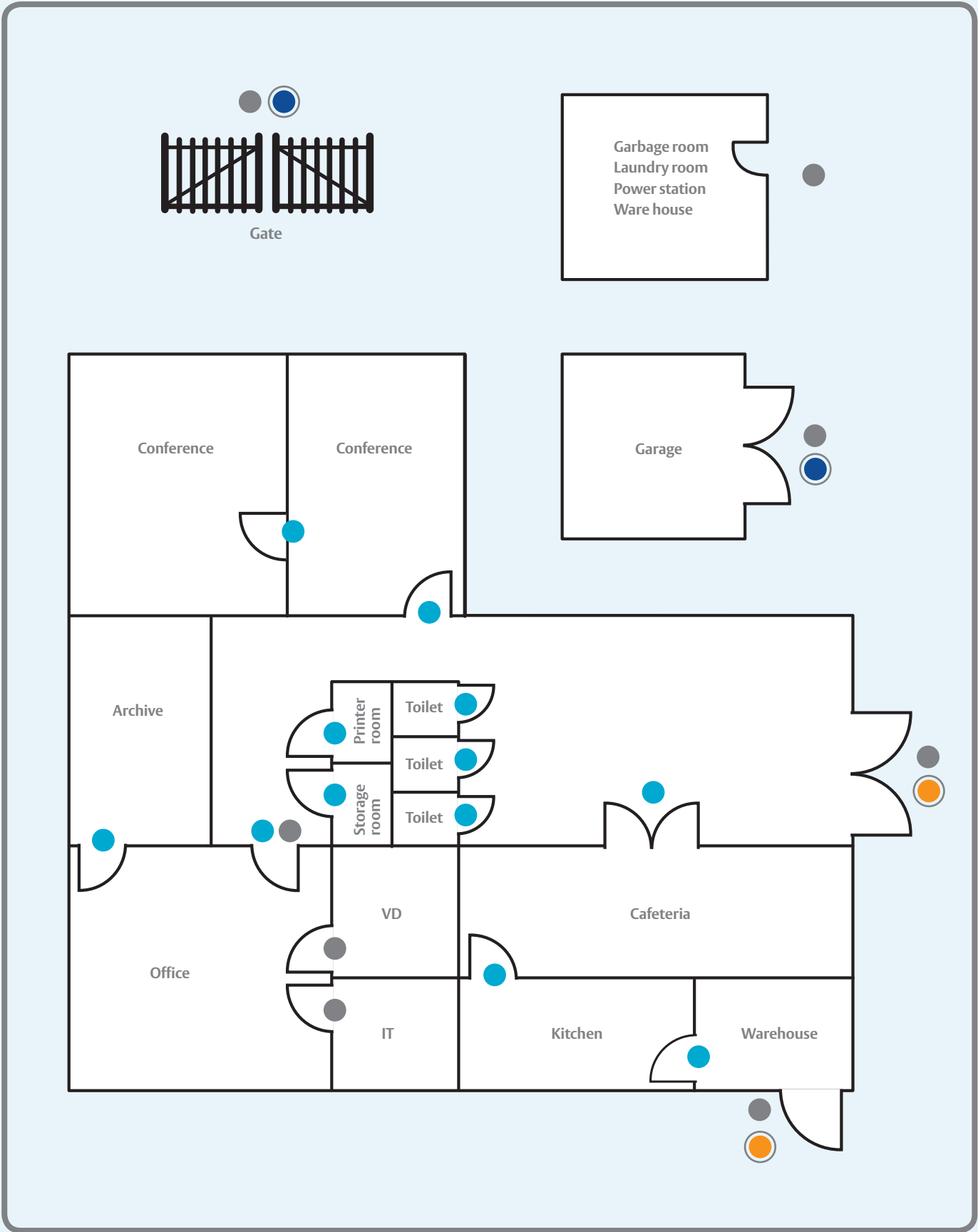


ASSA ABLOY code carriers

ASSA ABLOY ARX High Secure Card

We at ASSA ABLOY have delivered secure, patented keys for many decades. So it's natural for us to ensure that the cards or tags we deliver for our security systems are secure and with high quality. We work closely with the biggest suppliers on the market and carry out well-defined quality controls to ensure this.

Proposed door solutions



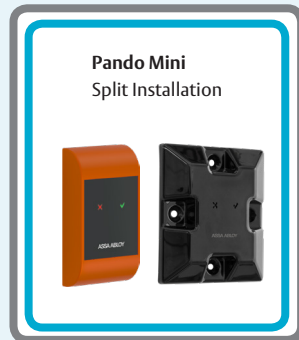
Perimeter security – High security and function with Online-readers

ASSA ABLOY Pando supports ARX High Secure Card which gives a very high level of security.

ARX High Secure Card with diversified keys and encrypted data provide maximum security. When using diversified keys, each card gets a unique key, which is required to read data stored on the card. The card data (cardnumber) is then decrypted in the controller with a customer unique key, after which decisions of access to the door takes place depending on access rights.



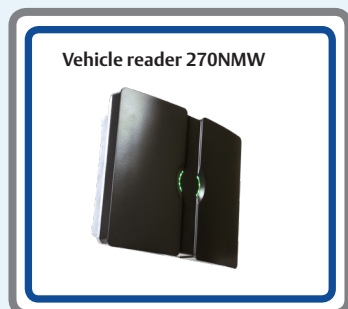
Interior doors – high convenience



Perimeter security – other



Vehicle access





ASSA ABLOY ARX security system is a great choice

Security is the knowledge of threats and risks and how they can be prevented and avoided. By installing an alarm system these threats and risks can be prevented.

Depending on who you ask, the expectations on a security systems differ. It may be that:

- Insurance requirements must be met
- Governmental requirements must be met
- Users should feel safe

The intent of the alarm system is, as early as possible indicate that there is an attempt to break in or to do an intervention in a point valet property. An alarm system also has an important role in creating a feeling of a safe environment for the people living or working in the property.

By implementing the alarm function, ARX will develop from an Access control system to a Security system which will be very cost effective, in installation, administration and service.

To get a security system to work properly, the interaction between the technology and the people is crucial – the best alarm is the one being used.

ARX has an intuitive and simple user interface, to minimize situations where uncertainty or insecurity means that the system is not being used.

With ARX security system, you can always project the right security in every part of your premises by using zone control. A detailed log file will also create a possibility to pursue a full audit trail of incidents or suspected violations.

Investing in ARX security system reduces the risk of burglary, attempted burglary, intrusion and vandalism, and thereby the cost involved.



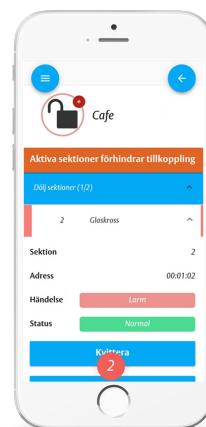
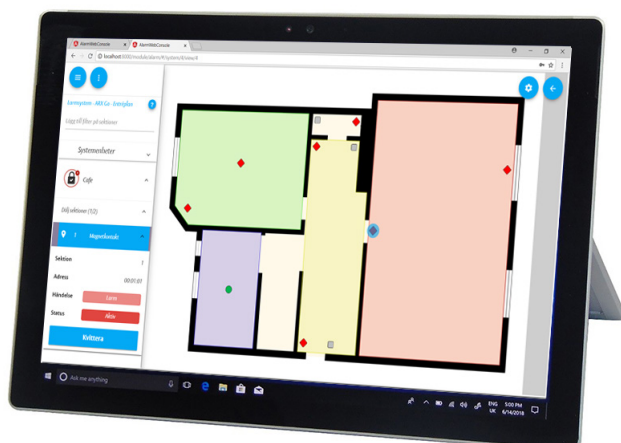
The Alarm components are Alarm approved according to SSF 1014, edition 4 alarm class 3/4

Complies with EN 50131-3:2009, Security grade 4, and EN 50130-5:2011, environmental class II

ARX GO is a unique web application for the security system. It makes it easy and smooth to handle the alarms directly in mobile phone, computer or tablet.

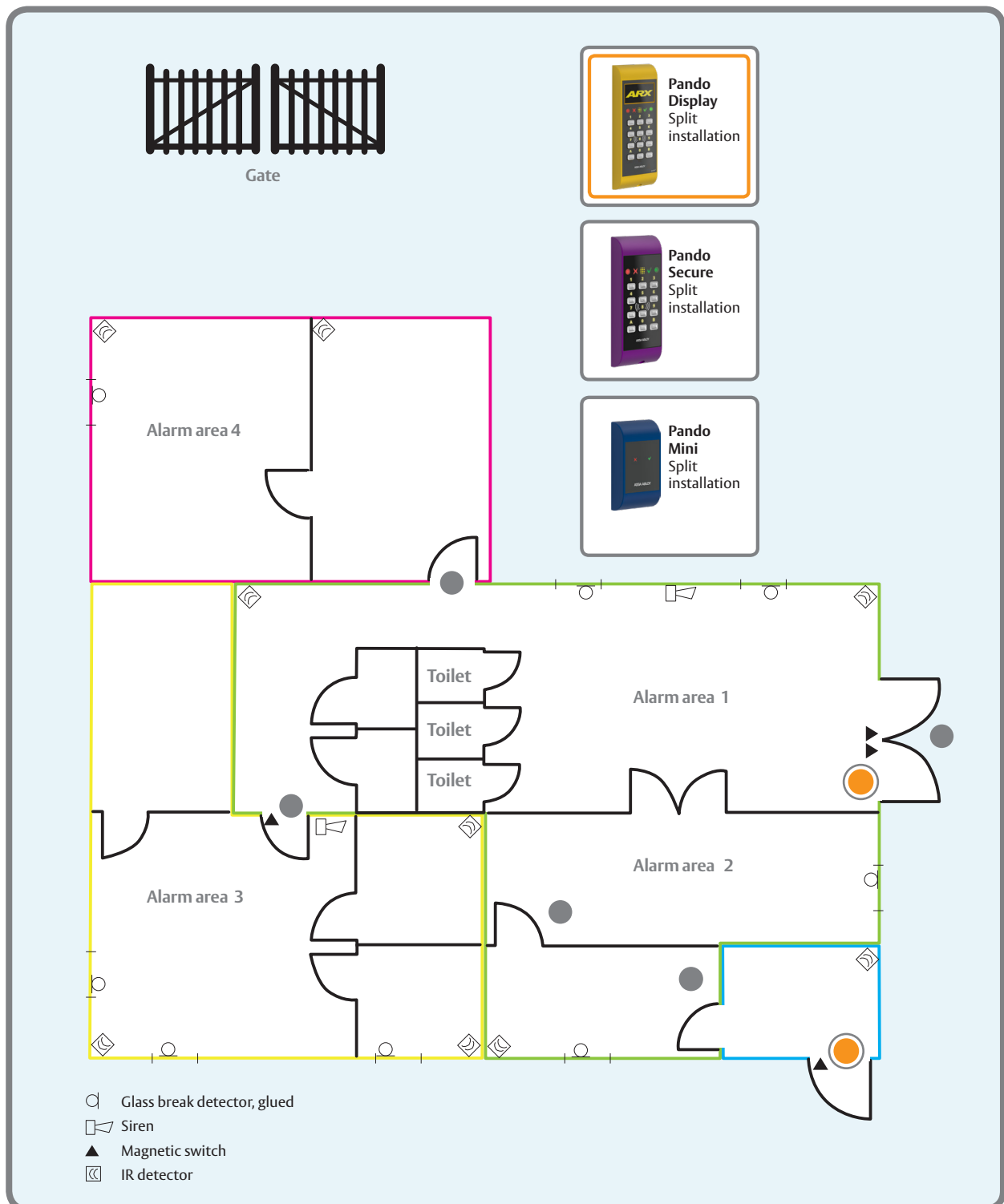
ARX GO are developed with focus on user-friendliness, that means the individual user.

The interface is designed so that you easily switch on or off different alarm areas, check status on different units or locate errors using a visual and educational map, completely without prior knowledge.





Proposal for a security solution





ASSA ABLOY ARX Security System

The central units LCU9016III and LCU9017III can be equipped with alarm components such as master and slave cards, which gives basic requirements for ARX security system with both access control and alarms.

There are two possible ways of communication between master and slave central units in the system: Ethernet connection with customer-unique encryption keys and via three ASSA ABLOY SIO-bus (with AES encryption). Through

to this redundancy a highly reliable security solution is established.

Via Secure In / Out (SIO)-units, detectors can be connected to the security system and outputs can be used to control e.g. sounders.

Unique to the ARX security system is that the events in a door environments can be used as alarm sections, for example "Door forced" or "motor lock not locked" and more.

New housing for Central units and door control units

The new housing is more spacious, more installation friendly and inspired by the ASSA ABLOY Pando reader design. The housings are designed to meet the requirements for

the desired alarm class and with the option to mount drilling protection.



New readers in the ASSA Pando Family

ASSA ABLOY Pando™ Display can be used as a card reader or as a control panel in the system and as the ASSA ABLOY Pando™ Secure reader and the choice of color is up to you.

ASSA ABLOY Pando™ Display can be connected as a reader /control panel in a door environment or as a stand alone control panel at a reception or monitoring center.

The display on the reader provides the user with clear instructions of the alarm operation and the possibility of information about the alarm status. Additionally, no entry without that the alarm is disarmed is accepted. The user therefore don't have to worry about if the alarm will be triggered. This creates security for the user.

ASSA ABLOY Pando™ Mini is a reader without a keypad included in ASSA's new generation of readers.

The reader is designed for an installation where there is no requirements for a keypad. With an IP65 rating and protective vandal factor the reader also fits in harsh environments.

ASSA ABLOY Pando™ Mini, with it's slim profile design is suitable to be mounted for example on a narrow door frame or within an appliance box.



Pando Display



Pando Mini



Pando Touch



Pando Mini
vandal protection



Pando Secure
vandal protection

Battery backups

ARX offers a wide range of battery backups, from standard to alarm-certified units. In addition, there are battery backups with space for mounting LCU 9016 components. These Backup units are available in IP30 and IP44.

This Backup unit provides:

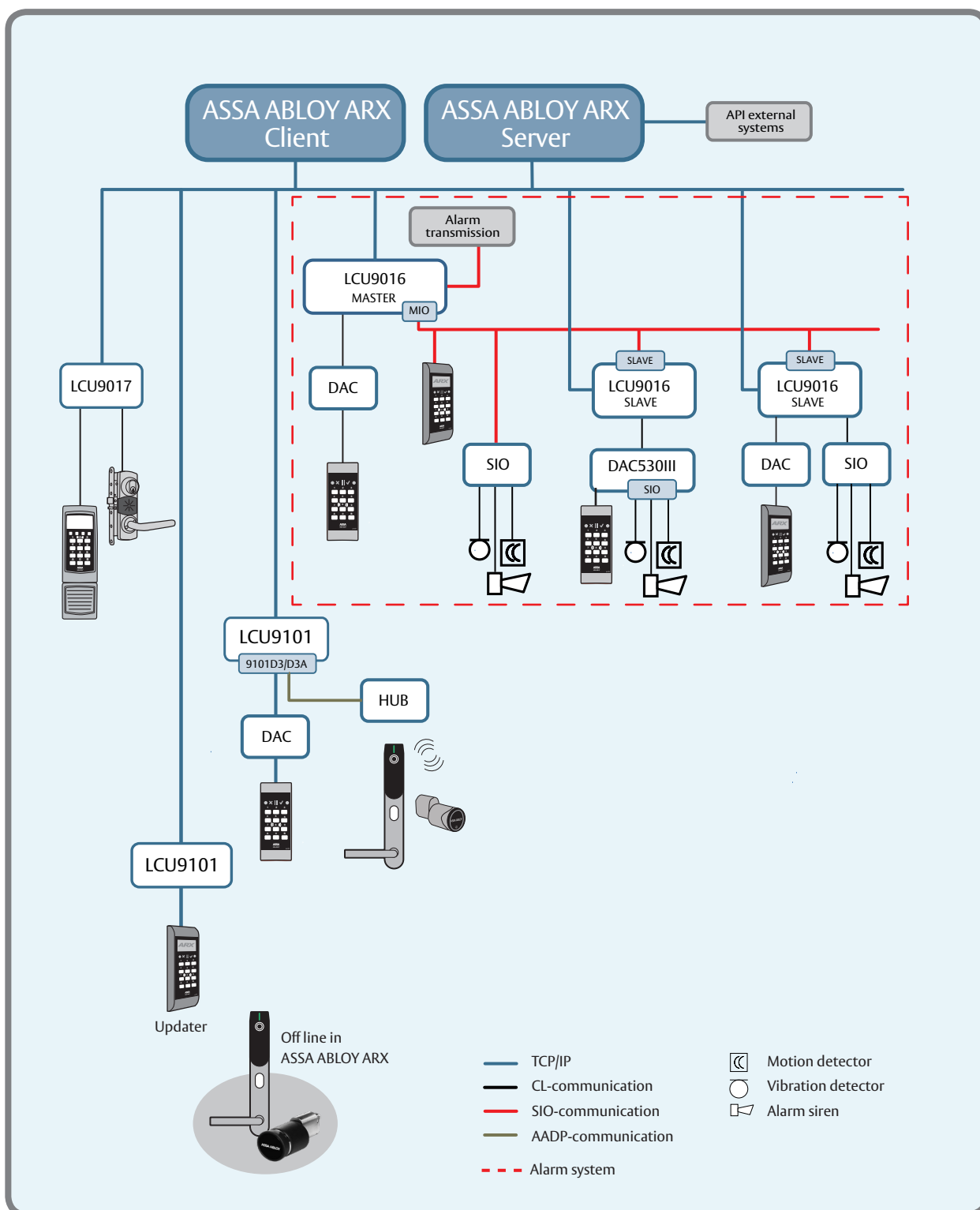
- Minimal installation area
- Minimal installation time
- A flexible and customizable solution

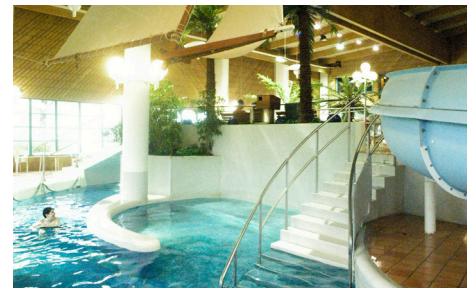


2950PSC IP30



ASSA ABLOY ARX system





Features in the ASSA ABLOY ARX Security System

ARX Security System can offer a large variety of features. Many are built in from the start, including ASSA ABLOY's patented solution for the security of the connection between the central unit and the server, alarm in ARX and offline in ARX. Below, an description of some of the most common additional functions:

ARX GO

ARX GO is a web app for managing alarms in ARX. ARX GO creates security for the user through a simple and clear user interface. ARX GO is designed for smartphone, tablet and computer, which creates mobility and smooth usage. The Display of alarms and alarm areas on floor plans provide clarity and a great overview of your alarm system.

ARX Trigger

Upon activation of the trigger function can, for example, one or several relays be controlled, an e-mail message can be sent to selected addresses to inform about an event in the system, or a door environment. It's also possible to create evacuation lists via triggers.

ARX Domains

User Domain Management can control who can do what in the system. Domains feature can restrict operators to only have access to a subset of persons, cards and the security restricted category, access control, the doors and alarm areas as well as the logs, for example, only the company itself.

ARX Zone Control

Zone control provides the ability to create zones and thereby verify where people are and how many people that are in each zone at a certain time. The system feature also allows you to manage evacuation lists as follows:

- Automatic printing (via trigger)
- Selectable and predefined related zones in printing
- Selectable simultaneous print destinations: printer, Web-applications and data screens

ARX Anti-passback

Anti-passback can be used to block the ability of a person to pass through the same door twice (namely using their card twice in a reader at the door). Anti-passback feature applies to the zone you pass into, namely, the zone that a person goes to.

ARX Interlocking

The interlock function is used when you want areas where only one door at a time can be open. When a door within the interlock group is open it blocks all other doors associated to the interlock until it is closed again.

ARX Fotolog

ARX Fotolog makes it possible to increase the control at a entry by presenting personal photos in ARX when passing selected doors, such as a desk or at the guardian.

ARX elevator control / mail boxes function

Control of an elevator can be integrated as part of the ARX access control system. Access control is done automatically at each floor with the card reader and the lift cage keypad. The function has individual access control for up to 256 floors. The election of the floor is made through either elevator floor buttons or the readers. The solution can be applied to mail boxes.

ARX Entry Phone function

Apartment buildings and businesses often have trouble with unauthorized persons entering the premises. If an entry phone is connected at the entrance you can easily control who should be allowed to enter depending on the time of day. The entry phone can be connected to a telephone exchange in an office or directly to the residents of a apartment building.

ARX Booking function

For administration of bookable objects such as laundries, saunas, conference rooms and car wash sites, etc. booking can be, made physically at the booking panel with a built in proximity reader, or over the internet via a web interface. All reservations are stored in the server, which means you can reserve any item from any booking panel over Internet in the system.

ARX EPL

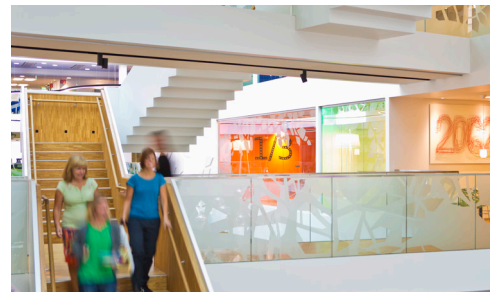
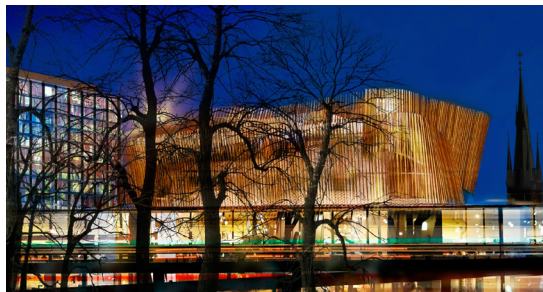
Function for "Electronic Personnel-ledger" that generates reports for a workplace.

Two reports are available:

- Report for those working in the workplace right now.
- Report for those working in the workplace within one certain time interval.

In ARX EPL, ARX doors are used to create workplace zones.

ARX badge Creator is a web-based Photo-ID add-on to an ARX client where you want to be able to create card templates, take personal photos and print access cards on a card printer.



Hi-O™ – smart technology provides lower costs

Standardized technology for door environments

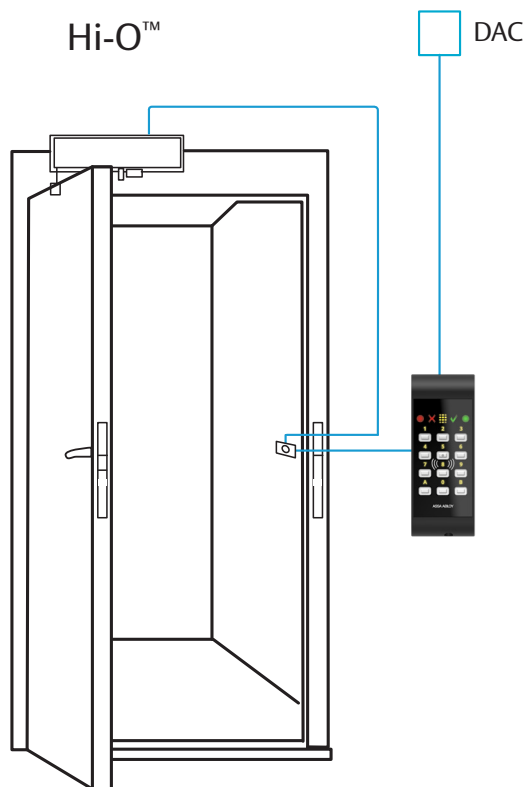
Hi-O™ means that all units surrounding the door environment speak the “same language.” This simplifies installation and troubleshooting, which leads to a longer life time for the products and the door environment, and tranquility to the owner of the building. Because the products automatically work better together and will report back if anything goes wrong, our customers can feel more secure with Hi-O.

All Hi-O units, around a door environment, have built-in intelligence in order to share encrypted information with other Hi-O units. Each unit reports its status and its properties to the other units to make door opening as trouble-free

as possible at every occasion. The Hi-O feature is built into most products used in the ARX security system today, and more products with Hi-O are being developed all the time.

Preventive maintenance

Hi-O offers detailed information about each unit to facilitate planned and targeted maintenance where necessary. For example, a technician can easily familiarize himself with how the system works, discover any problems, prepare service and replace any faulty units before they break down completely. All this results in reduced costs and continuous functioning of the door environment.



Advantages of Hi-O technology

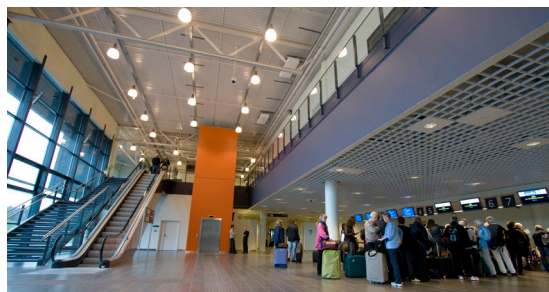
- High security in the door environment creates safety for the users.
- Intelligent devices for easier installation.
- Important information from units increases control and a more efficient service level.



What door should you choose?

This table makes it easy to see which ARX reader is best suited for your needs.

| ARX | Online wired Wall reader, split installa- tion | Online wired Wall reader, compact installation | Online wired Escutcheon | Online wireless Door-mounted reader and Aperio electro- nic cylinder | Offline Door-mounted reader and Ape- rio electronic cylinder |
|------------------------------------|--|--|--|--|---|
| Type of door environment | Outer door or interior door with higt security requirements | Interior door or outer door without high security requirements | Interior door | Interior door | Interior door |
| Alarm conatrol option | Yes | Yes | No | No | No |
| Wiring | Yes, from central unit to DAC and reader | Yes, from central unit to DAC and reader | Yes, from central unit to reader | Yes, from central unit to reader | No |
| Intervention on door/frame | Yes | Yes | Yes | No | No |
| Reading technologies | EM, MIFARE Classic, MIFARE DESFire (CSN and sector), SEOS, iCLASS | EM, MIFARE Classic (serial no./ sector) | EM, MIFARE Classic (serial no./ sector) | EM, MIFARE Classic, MIFARE DESFire (Serial no. / Sec- tor alt. Applica- tion) | MIFARE Classic, MIFARE DESFire (Serial no. / Sec- tor alt. Applica- tion) |
| ARX High Security Card | Yes | No | No | Yes | No |
| Changing authorization | Online in ARX | Online in ARX | Online in ARX | Online in ARX | Using the person's access card |
| Traceability | In realtime in ARX | In realtime in ARX | In realtime in ARX | In realtime in ARX | Classic: Retrieved in reader DESFire: in ARX Transferred via cards |
| Keypad | Yes | Yes | No | Yes | No |
| Schedule control, Door unlocked | Yes | Yes | Yes | Yes | Only manually with card |
| Schedule control, Person | Yes | Yes | Yes | Yes | Yes |
| Power supply | External | External | External | Battery | Battery |

[illegible]

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

ASSA ABLOY

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