ABLOY® PULSE
Technical brochure

ABLOY

Contents

General description

ABLOY PULSE is an advanced locking and access management system that can be considered an ecosystem in which keys and locks communicate with each other. The ecosystem covers customer locking requirements including access management and locking solutions. Cylinders, padlocks and furniture locks, RFID readers and keys can be connected to the system. The system is managed with ABLOY ACCENTRA software.

PULSE locks are completely identical to mechanical products, and so are suitable for replacing the corresponding mechanical products. The use of an RFID key is also similar to a mechanical key with locks. The keys and locks contain electronics, but do not contain batteries. Key thrust provides the necessary energy for opening the locks and for access control, without a separate power supply or battery.

The locks and keys compile an audit trail, and the key also transfers a time stamp that is updated whenever the key is used with an updater or whenever it opens a lock that has a newer time stamp updated through another key. The time stamp eliminates the need for a separate clock circuit when events are generated in temporal order. Through the updater, the keys are also updated with a list of lost keys and the keys transfer the information to the locks. This makes the lock system independently operating and remotely manageable.

A fundamental part of the system is the updater consisting of a controller and an RFID reader. The updater maintains a real-time connection with the ACCENTRA software, and thus enables remote control of the system. The purpose of the reader is to read the key audit trail, send this information to the ACCENTRA software and update any changed access rights, the list of lost keys and the time stamp while opening the door. The location of the reader may be next to the entrance door in an apartment building, for example, and the controller is connected to control the electric lock of the door. It can also serve as an update point for the key, without door control. In this case, the most common place of use is the lower lobby of an apartment building or other area that is in common use. Each system should include an updater. In this way, the system operates independently and provides the best level of safety.

The PULSE system does not have any permanently system-related products. It is assembled from standard PULSE products and can also be divided into separate systems later. PULSE systems can also be combined at some later date. The system can be dismantled, and the individual products can be reused.

PULSE key

The key works like a standard key, but also as an identifier for readers, allowing the entire system to be built cost-effectively according to the customer's needs. The key does not use mechanical keying or batteries. The key can also be connected to up to ten different systems, which makes it possible to access several properties with the same key. The key is made of cast overmoulding and metal, and the electronics are contained inside a watertight key leaf.
The key leaf contains LEDs for guiding use of the key.

The key can be added to the system using a desktop reader or an updater, either by typing the serial number on the key leaf into ACCENTRA or by reading the serial number electronically using the desktop reader. A time stamp is stored in the key memory when it is displayed to the updater, for example when using the entrance door of an apartment building. In addition to the time stamp, the keys receive the latest information about lost keys through the reader and transfer the data to the locks according to access. The time stamp provides a more accurate audit trail than is possible in systems that do not use a time stamp or a clock circuit powered by a separate battery. PULSE key is available ABLOY and ASSA ABLOY branded.

Technical specifications

Operating temperature range	–30 ºC ... +60 ºC
IP68	
Operation is shown with LED indicators	
RFID function	
Identifier and encryption technology	iClass Seos®
Frequency	13.56 MHz
Access right memory	70 locks or access rights groups
Audit trail	100 events
List of lost keys	150 keys
Changeable key shaft colour marker	

The key in a nutshell

- **Copy protection:** All PULSE keys are mechanically identical. The key security is based on high-security encryption technology.

- **Usability:** The key is symmetrical, so it fits in the lock both ways and also has LEDs for ease of use. The key acts as an identifier for readers, in which case a separate access card is not necessary.

- **Programming:** Key access rights are managed in the ACCENTRA software. Keys can be distributed to users in advance and programmed into the lock system using the serial number.

- **Lost keys:** Lost keys are reported as lost in ACCENTRA. The information is updated through the updater to the other keys, after which the users' keys send the list of lost keys to the locks. This avoids the need for having to separately update the locks on site.

- **Time:** The keys send the time stamp from the updater or locks, and this is transferred with the key between locks.

- **Flexible:** Each key can be used in up to 10 different systems the same time. For example, access can be granted to a parking facility that is jointly used by two housing companies without the need for two separate keys or identifiers.

PULSE cylinder

The PULSE cylinder generates the electrical energy it needs from the thrust of the key. For this reason, the door does not require a power supply cable or battery and is compatible with modern lock cases. The cylinder does not have mechanical keying but instead makes use of electronically controlled discs and strong encryption. The cylinder can be reprogrammed and its data can be updated using the ABLOY PULSE mobile application and USB programming device, or also with the PULSE key. The lock is designed and tested to withstand harsh climatic conditions.

The PULSE cylinder replaces a conventional mechanical cylinder, allowing the existing ABLOY protective fittings to be used when renewing the locking. This creates cost savings and reduces the amount of environmentally harmful waste. This allows a flexible and fast locking system to be updated to meet the latest requirements. Note: on some doors, the protective fitting may need to be replaced by a higher version.

The cylinder has a time stamp and a list of lost keys that are updated by the keys used in the lock. The time stamp enables the use of the key's validity period and the creation of a list of access events along with time stamps without the need for a separate clock circuit.

PULSE cylinders are available ABLOY and ASSA ABLOY branded.

Technical specifications	
Compatible with modern lock cases	
Surface treatment options	Chrome, satin chrome, brushed nickel, brushed and glossy brass plating (with a protective lacquer), ABLOY ACTIVE coating
For interior and exterior doors	
Standard time stamp functionality	

Memory capacity
500 access events
70 access rights groups
150 lost keys

Desktop reader

The PULSE desktop reader allows keys to be programmed into the system and can also be used to update key access rights, create a list of lost keys, and read access events from the keys. The device is connected to a computer and to the ACCENTRA software via an internet connection. The desktop reader needs PC software (ABLOY PULSE) to run, which can be downloaded from ACCENTRA. The software provides a secure and encrypted connection between the reader and the cloud service. The desktop reader is not system-specific and can be programmed to operate as part of up to 20 systems. The desktop reader can also be transferred from one computer to another, which facilitates management.

Technical specifications	
Connection type	USB 2.0 Type A / CCID support
Cable length	2 m
Operating temperature range	0 ºC ... 55 ºC
Dimensions	71 mm x 93 mm x 16 mm
Weight	100 g
Approvals	CE, FCC, UL, KCC, RCM, WEEE, ROHS2, Reach

Online Updater

The updater is the central element of the PULSE system. The updater consists of a controller and an RFID reader that is connected to it. The controller is connected via the internet connection to ACCENTRA, making the system remotely controllable. The updater makes it possible to change key access rights and update data to the keys. Users' keys also transfer data from the locks to the software without the need for an administrator to visit the property.

The updater can also be used to control a door, lift or gate that is connected to the controller. In principle, it can be used to control any relay-controlled device. The controller's memory stores the system's access rights in encrypted form, making it possible to use the door even if the connection to the cloud service is not working.

The system can consist of one or more updaters. The controller can be connected to one updater and can be used to control one door. The controller is compatible with the PULSE R10 reader. Even if the internet connection is cut off, up to 1,000 previous access events and 5,000 key permissions can be stored in the memory.

The updater can be used for two different purposes, depending on the need for use.

- As an update point.
- Used to update, share or return keys.
- For door control and updating of keys.
- A reader connected to the controller can open the electric lock, and the key is updated at the same time.

Technical specifications of the reader

Operating voltage	5 – 16 V DC
Power consumption (standby mode)	~60 mA
Power consumption (average use)	~95 mA
Power consumption (max.)	~200 mA
Operating temperature range	–35 ºC … +65 ºC
Cable length	max. 100 m (see the Abloy electrical designer's guide for more detailed guidance)
Dimensions	4.8 cm x 10.3 cm x 2.3 cm
IP55	
Reading technology	iCLASS SeoS® 13.56 MHz
Colour options	Black

The package contains two mounting plates and the necessary accessories.
* Note: No wall mounting box is available.

Technical specifications of the controller

Operating temperature range	+5 ºC … +40 ºC
Input voltage	24 V DC or POE
Power supply, internal	3.3 V and 13.8 V
Power consumption	24 V DC max. 100 mA
Ethernet connection	TCP/IP
Relay load	Max. 700 mA
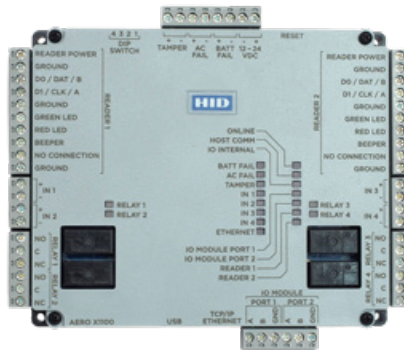
Product range

The PULSE system can be used with a wide range of cylinders for solid doors and profile doors, as well as furniture locks and padlocks for a variety of applications. The range also includes surface locks, micro switch locks, cylinders for key deposits, balcony door cylinders, multipoint lock cylinders, cylinders with push plates, and replacement lock sets for renewal of locking.

There is also a dummy cylinder and dummy furniture lock. Dummy products do not contain any electronics and can be unlocked with any PULSE key. Dummy furniture locks can be used, for example, to lock heating posts for cars, so that no separate heating post key is required.

PULSE locks and cylinders have an energy harvester that generates the electricity needed for electronic operations from the key thrust. The latest product range can be found in the currently valid price list.

PULSE products are distinguished with the letter E in the product code

· Example: mechanical key cylinder CY001 –> PROTEC2 CLIQ version CYL001T and PULSE version CYE001

Correspondence table for ABLOY device locking products

PULSE	CLIQ	Mechanical
CLE130	CLL130T	CL103
OFE240	OFL240T	OF230
OFE244	OFL244T	OF234
PLE321	PLL321T	PL321
PLE330	PLL330T	PL330
PLEW330	PLLW330T	PLM330
PLEW340	PLLW340T	PLM340
EPE410	EPL410T	EP400
EPE411	EPL411T	EP401

PULSE padlock shackle lengths:	
PLE321	13.5 mm, 20 mm, 50 mm
PLE330 and PLEW330	25 mm, 50 mm
PLEW340	25 mm, 50 mm

CY001
CYL001T
CYE001

CY002
CYL002T
CYE002

CY016
CYL016T
CYE016

CY060
CYL060T
CYE060

CY061
CYL061T
CYE061

CY062
CYL062T
CYE062

A wide range of products — one key fits everywhere

Durable and IP-rated padlocks for everything from indoor use to harsh conditions.

Industrial locks are available in a variety of models.

A suitable cylinder for every door.

Key deposits for secure storage of route keys.

PULSE europrofile cylinder range

The cylinder gets energy by key insertion, without batteries or power supply. Administrating access control can be done anywhere at any time using the ABLOY ACCENTRA software. All PULSE components use Seos-technology.

ABLOY CYE321

Electromechanical PULSE DIN /Europrofile half cylinder

Electromechanical PULSE cylinder. Used with mortice lock cases with DIN /Europrofile cylinder dimensions.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2C

ABLOY CYE331

Electromechanical PULSE DIN/Europrofile hardened half cylinder

Electromechanical PULSE cylinder. Used with mortice lock cases with DIN /Europrofile cylinder dimensions.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2D

ABLOY CYE345

Electromechanical PULSE DIN/Europrofile Double cylinder (EH/Dummy)

Electromechanical PULSE double cylinder with dummy inside. Used with mortice lock cases with DIN /Europrofile cylinder dimensions. Outside cylinder is electronic PULSE and inside is dummy cylinder that can be operated by any PULSE key. Lock is operated by key from outside and by knob inside.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2C

ABLOY CYE355

Electromechanical PULSE DIN/Europrofile hardened double cylinder (EH/Dummy)

Electromechanical PULSE double cylinder with dummy inside. Used with mortice lock cases with DIN /Europrofile cylinder dimensions. Outside cylinder is electronic PULSE and inside is dummy cylinder that can be operated by any PULSE key. Lock is operated by key from outside and by knob inside.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2D

ABLOY CYE322

Electromechanical PULSE DIN/Europrofile double cylinder (EH/EH)

Electromechanical PULSE double cylinder. Used with mortice lock cases with DIN /Europrofile cylinder dimensions. Both cylinders are electronic PULSE. Lock is operated by key both side of the door.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2C

ABLOY CYE332

Electromechanical PULSE DIN/Europrofile hardened Double cylinder (EH/EH)

Electromechanical PULSE double cylinder. Used with mortice lock cases with DIN /Europrofile cylinder dimensions. Both cylinders are electronic PULSE. Lock is operated by key both side of the door.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2D

ABLOY CYE323

Electromechanical PULSE DIN/Europrofile knob cylinder

Electromechanical PULSE cylinder with knob to be used with mortice lock cases with DIN /Europrofile cylinder dimensions. Outside cylinder is electronic PULSE. Lock is operated by key from outside and by knob inside.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2C

ABLOY CYE333

Electromechanical PULSE DIN/Europrofile hardened knob cylinder

Electromechanical PULSE cylinder with knob to be used with mortice lock cases with DIN /Europrofile cylinder dimensions. Outside cylinder is electronic PULSE. Lock is operated by key from outside and by knob inside.

Overview of Advantages

· Can be used with wide range applications for DIN cylinders
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses
· Adjustable locked position of cam
· Available in ASSA ABLOY and ABLOY branding
· DIN EN 15684:2021-05 – 16B40D2D

PULSE Scandinavian type cylinders

ABLOY CYE200

Electromechanical PULSE
Scandinavian oval cylinder hardened

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases where approval is needed.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of
· your locking system
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
· Available in ASSA ABLOY and ABLOY branding
· EN 15684:2012 – 16B4AF22, SSF3522 Class 3

ABLOY CYE201

Electromechanical PULSE
Scandinavian oval cylinder

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases. Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of your locking system.

Overview of Advantages

· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
· Available in ASSA ABLOY and ABLOY branding
· EN 15684:2020

ABLOY CYE209

Electromechanical PULSE
Scandinavian round inside cylinder

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of
· your locking system
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
· EN 15684:2012 – 16B4AF22, SSF 3522 Class 5

ABLOY CYE211

Electromechanical PULSE
Padlock cylinder

Electromechanical PULSE Padlock cylinder "Snowman". It fits Black standard ASSA ABLOY Padlock housing class 2. Cylinder makes the upgrade from a standard mechanical padlock to a digital PULSE padlock go in the simplest possible way.

Replaces existing ASSA ABLOY Snowman cylinder XX06.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of your locking system
· Suitable for both outer and inner door use.
· Designed and tested to withstand difficult climate conditions
· EN 15684:2020

ABLOY CYE207

Electromechanical PULSE
Scandinavian oval inside cylinder

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of your locking system
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
· Available in ASSA ABLOY and ABLOY branding
· EN 15684:2012 – 16B4AF22, SSF3522 Class 3

ABLOY CYE208

Electromechanical PULSE
Scandinavian round cylinder

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases. Cylinder is designed for doors with the highest requirement security in SSF3522 class 5. For example, apartment doors, offices, shell protection gates and shop premises. The lock cylinder has drilling protection ASSA ABLOY SCD + and pull-protected core.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of your locking system
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
· Available in ASSA ABLOY and ABLOY branding
· EN 15684:2012 – 16B4AF22, SSF 3522 Class 5

ABLOY CYE212

Electromechanical PULSE
Scandinavian oval inside cylinder for Norway

Electromechanical PULSE cylinder. Can be used wide range of Scandinavian type mortice lock cases.

Overview of Advantages

· Cylinders with standard dimensions entail easy upgrade, fast, and flexible modernization of
· your locking system
· Suitable for both outer and inner door use
· Adjustable length with extension system to match different door thicknesses.
· Designed and tested to withstand difficult climate conditions.
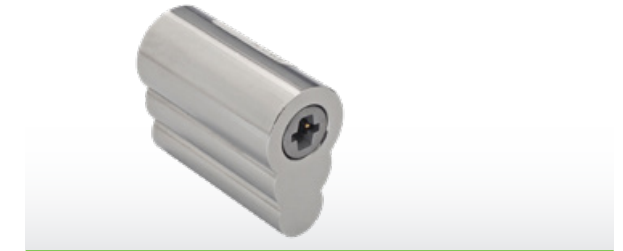· EN 15684:2012 – 16B4AF22, SSF3522 Class 3

ABLOY PULSE
Product Catalogue

Software

ABLOY® ACCENTRA

ACCENTRA software is used to manage the ABLOY PULSE system. The software is accessed by internet browser at https://www.accentra.abloy.com/

To manage the system, an internet connection and a device with an internet browser is needed. ACCENTRA software is provided only as a service, which means that it is not possible to obtain it as a separate installation for the customer's server. Abloy is responsible for the development, maintenance and updates of ACCENTRA.

A username and password are needed to log in to ACCENTRA. No separate system identifier is required. ACCENTRA enables the management of multiple systems using the same identifier.

The software is currently available in English, Finnish, Swedish, Norwegian and Danish. There is no specific size limit for the system, but the offline opening rights capacity of 5,000 keys for the updater should be taken into account.

FEATURES

1. Accessibility and usability
a. Enables system management independently of time and place with a computer
b. Automatic software updates, security updates and backups
c. Basic use of the software does not require software installations (except for the desktop reader)

2. Login
a. A username and password are needed for management of the system (without a separate physical programming identifier)
b. Multi-system management is possible

3. Design of the site, users and products
a. Addition and editing of buildings, floors and floor plans
b. Creation and editing of products and user informationn
c. Handover and return of keys with option to print handout document of keys
d. Management of locks and readers using the floor plans

4. Mass data importing
a. Importing of products, keys, persons and access rights using Excel templates

5. Access rights
a. Setting, change and deletion of access rights
b. Management of validity periods for keys
c. Management of lost keys
d. Management of access rights groups and access rights profiles
e. Management of PIN codes
f. Locking chart export in Excel format

6. Audit trails
a. Collection and display of audit trails for keys, locks and updaters (optional)
b. The events of the audit trails are collected automatically via the updater

7. System administrator roles
a. Specify the functions of the locking system that the administrator is authorised to perform
b. The functions are displayed in the software depending on the role assigned to the administrator

8. User-friendly user interface
a. Dashboard with locking system statistics
b. Logical menu structure
c. Responsive web design

9. General system settings
a. Revalidation period setting for keys
b. Retention period setting for audit trails and event logs
c. Handout document templates

System requirements for the customer's computer

- The recommended browser for the ACCENTRA software is Google Chrome, which is officially fully supported. Mozilla Firefox has also been tested and found to work, although officially it is not recommended.
- If using other browsers, some functions may not work as they are designed to.
- Internet Explorer and Microsoft Edge are not recommended.

ABLOY PULSE software as a service (SaaS) content:

- **The ABLOY ACCENTRA and ASSA ABLOY System Manager systems are maintained as a service**
- **SaaS shared between multiple customers, with the different customers being logically separated from each other**
- **Monthly target availability 99.5%, excluding planned downtime**
- **24/7 monitoring and response to deviations detected in service availability**
- **24/7 security event tracking**
- **Software services support for events reported by locksmiths during office hours on weekdays**
- **Up-to-date infrastructure and data security updates**
- **Antivirus solution and updates**
- **Physical security of the infrastructure in accordance with ASSA ABLOY's security policies**
- **Regular database and system platform backup according to Abloy's service production documentation**
- **Maintenance and updates according to a schedule specified by Abloy**

ABLOY PULSE SaaS is maintained on an Amazon Web Services (AWS) platform. The service uses an AWS data centre located in Ireland, where ABLOY PULSE software operates in two different availability zones.

Amazon Web Services (AWS) carries the ISO27001, ISO27017, ISO27018, and SOC1-SOC3 certifications. For more information, see the Compliance section on the Amazon Cloud website at https://aws.amazon.com/compliance/

The infrastructure is based on the principle of high AWS availability, where each instance has an active and a passive server. This allows for quick recovery from problems and maintenance in transfer mode between servers.

ASSA ABLOY System Manager

System Manager is a service portal through which ABLOY-authorised locksmiths manage PULSE customers and their systems. The portal allows the locksmith to set up the main users of the applicable locksmith and user credentials for installers to log in to the ABLOY PULSE mobile application. Administrators are able to set up other administrators, installers, customers and systems. The system setup process defines basic information, such as the system name, customer name (system owner), and selects the IDs of the installers who can view the system information in the mobile application.

ABLOY PULSE desktop updater software

ABLOY PULSE desktop updater software enables a secure connection for the desktop reader to ACCENTRA. The computer software and desktop reader make it easy and quick to program keys into the system. The software package is downloaded via ACCENTRA and requires administrator credentials for installation.

Features:

· Key programming in the system
· Change or removal of key access
· Updating of the time stamps and lost keys lists
· Download of access events from a key to ACCENTRA
· Resetting of the key
· Key serial number reading for the management software
· Language options: Finnish, Swedish and English

System requirements:

· Windows 7*/8/10
· PULSE desktop reader
· PULSE desktop reader drivers (available from Windows Update)

* Note: Windows 7 support ended on 14 January 2020. Since that date, no more technical support or Windows Update updates are available for that product to help protect computers. Therefore, Abloy cannot guarantee that future versions of the PC software will be fully compatible with Windows 7. For security reasons, we recommend upgrading to Windows 10.

ASSA ABLOY Device Configurator

The ABLOY PULSE mobile application is used to manage PULSE system locks and readers. With the USB programming device connected to a smartphone, PULSE locks can be controlled flexibly and easily.

The app connects the updater to the system using the phone's near field communication (NFC) capability.

System requirements:

· Android 6.0 or later operating system
· NFC support (for reader programming)
· Micro-USB or USB-C connection.
· Note: If a micro USB to USB-C adapter is used, the phone and adapter must be on-the-go (OTG) compatible

Features

· Multi-locking system management
· Lock and reader programming
· Lock resetting to factory mode and reprogramming
· Lock serial number reading
· Lock data updates (e.g. addition of a new access group)
· Lock firmware update

Download AA Device Configurator

Data security and GDPR

DATA ENCRYPTION

Sensitive data contained in the ABLOY PULSE system is protected by strong encryption. The data security of PULSE products is based on Seos® technology developed by ASSA ABLOY. Seos technology enables the creation of a digital identifier from the identity of a conventional identifier for use with other non-conventional access identifiers. The technology also enables the independence from the data transfer protocol. A 128-bit AES algorithm is used to encrypt data.

SeoS establishes a secure communication tunnel between the identifier device (e.g. a key) and the reader using the SHA-256 cryptographic hash function before transferring the actual, separately encrypted data packet. The combination of these two algorithms ensures extremely high-security data transfer between devices.

Seos technology is based on the Seos vault. It enables a secure device-independent storage location for the digital identifier. The desired electronic identity can be retrieved from the inside of this vault using the encryption capabilities of the reader's microprocess.

SECURITY OF DATA COMMUNICATIONS

ABLOY PULSE infrastructure is built on a public cloud platform (Amazon Web Services). ACCENTRA has a separate private cloud and advanced firewall rules and access control that restricts access from the outside and inside of the network to trusted sources only. Access to servers is limited to functionality and support team members and to read-only access. All the licensees have undergone a background check based on ASSA ABLOY's security policy, and access rights are audited twice a year.

Communication between all the services and devices is protected by HTTPS and by use of the TLS mechanism to validate server certificates. In the PULSE system, data communication and the data packets it contains are separately encrypted, making the system extremely secure.

The illustration shows a graphical model of the Seos vault, i.e. a physical identifier. The vault can be thought of as being divided into compartments and several storage chambers.

Each storage chamber is called an ADF. Each ADF has a unique code. The ADF stores the digital identifier and other desired information.

Each ADF is protected by a separate access key. The reader needs to have this access key in order to access the ADF content.

This multi-level encryption and data separation make Seos technology the most secure encryption technology on the market, and in the future will make it possible to include a key in multiple systems, for example, or for a phone to act as a key.

ID: 356465-1

ID: 356465-2

ID: 356465-1

GET CREDENTIAL

PUT CREDENTIAL

SEOS EDGE
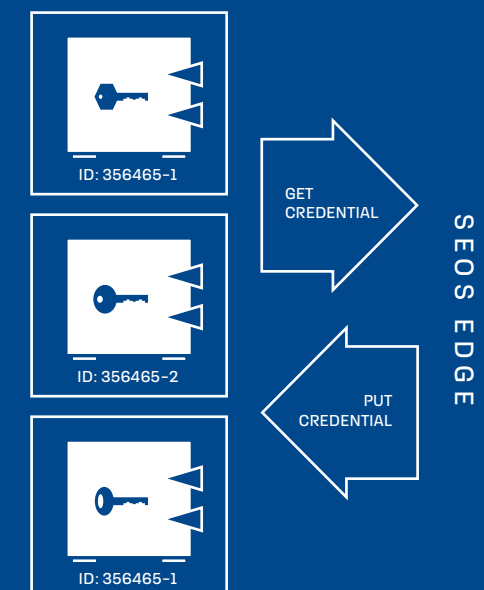
THE FOLLOWING TABLE DESCRIBES THE MECHANISM FOR SECURING COMMUNICATIONS BETWEEN ACCENTRA AND PHYSICAL DEVICES.

Service	External device / application	Protocol and security mechanism
ACCENTRA	ABLOY PULSE mobile application	The application acts as an HTTPS client. The application ensures communication with the correct service with a certificate and uses an access token (OAuth) to authenticate to the service.
ACCENTRA	Internet browser	The application acts as an HTTPS client. The application ensures communication with the correct service with a certificate and uses an access token (OAuth) to authenticate to the service. Communication is protected using the HTTPS protocol. The browser is responsible for validating the server certificate provided by ACCENTRA.
ACCENTRA	Updater	HTTPS data communication protection is used. The firmware ensures communication with the correct service using a certificate. Updating of sensitive data in the reader memory is protected by SeoS encryption.
ACCENTRA	Desktop reader / PC software	HTTPS data communication protection is used. The application ensures communication with the correct service using a certificate.

DATA STORAGE

The databases used in ACCENTRA are backed up every six hours and stored in a separate service in AWS. Backups are kept for three months.

ACCENTRA collects application-level logs about system activity. Sensitive information such as passwords is not stored in the log data. Log retention varies between services, but the longest retention period is sixty days. Similarly, logs related to infrastructure are managed and audited by the service development team. Only authorised personnel have access to log storage, and views are also recorded in the logs. Infrastructure-related logs are retained for two weeks.

DATA SECURITY

Abloy Oy is part of ASSA ABLOY Group. In accordance with ASSA ABLOY's rules, we are committed in our business operations to acting in accordance with best ethical practices and to complying with applicable legislation. Abloy is committed to continuously reviewing its processes and guidelines.

In the ABLOY PULSE system, Abloy is always the data processor. Abloy processes personal data only on behalf of the customer. Abloy never processes personal data for purposes other than those specified by the customer. The end customer is the data controller that has stored the data in the system.

In the development of the PULSE system, we adhere to the principle of privacy by design and default and carry out data security impact assessments.

Customer internet connection requirements

The PULSE controller communicates with ABLOY ACCENTRA via internet connection. The most common internet interfaces available from operators are suitable as the internet connection. The recommended interface speed is at least 10Mbit/s. If using a mobile broadband connection, a subscription with unlimited data transmission is recommended.

Depending on the network infrastructure, the controller is connected to the router or switch using a network cable with an RJ45 connector. The controller automatically retrieves the IP address and other necessary network settings from the DHCP service on the network. If no DHCP service is found on the network, the network can be manually configured.

The PULSE controller maintains contact with ACCENTRA, during which time the changes that are made can be updated to the key with a delay of about 10 seconds (depending on the speed of the internet connection and the environmental load on the server).
The controller can decide independently to open the door, so disconnection of the network does not prevent the door from being used if the key is programmed into the system and if the key has access rights to the door controlled by the controller. However, when the network connection is disconnected, key data cannot be updated to ACCENTRA, nor can the key be updated with changed access rights.

In principle, separate firewall rules are not required by the controller's data communications, since the direction of data transmission is from the internal network to the internet. In firewalls, return packets are usually allowed automatically. The firewall and necessary network settings can be verified by the network administrator. The controller must have access to the public internet via the TCP 443 port.

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ABLOY offers security and locking innovations dedicated to creating more trust in the world. Combining digital and mechanical expertise, Abloy Oy develops industry–leading security solutions that protect people, property and business. Abloy is part of the ASSA ABLOY Group, the global leader in access solutions. Every day, we help billions of people experience a more open world.

Abloy maintains Product Security Center at www.abloy.com/securitycenter. We recommend that You check the Center on a regular basis in order to be fully informed of product security updates, so that your knowledge of our products remains optimal.

It is the customer's responsibility to define the required level of security, whilst taking into consideration relevant factors for its operations. To achieve the overall level of security required in the customer's operations multiple layers of security must be in place. These include for example locking system, key management system, access management, CCTV and alarm system as well as physical security in a manner and level specified by the customer.

MANAGEMENT SYSTEM CERTIFICATION
DNV
ISO 9001• ISO 14001
ISO 45001• ISO/IEC 27001

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