

# **DESCRIPTION:**

The B&B Locks A1-series are electrical security locks of superior quality. Because of their very solid construction, these locks offer an extreme high resistance against all forms of agression and burglary attempts and are suitable for intensif use. To ensure a fast and precise action, the hardened locking components are driven by a powerful solenoid. This solenoid was especially designed to have the best possible balance between activation and holding current. A low power consumption and very little heating are additional advantages thereof. Unlocking is done by giving an impulse using a push button, card reader, code, fingerprint or any other type of impulse generator. Mechanical unlocking is always possible using a key. The automatic locking mechanism guarantees that the bolt will be thrown and locked as soon as it closes, which makes a closed door automatically a secured door.

# **CHARACTERISTICS:**

- Voltage: 48V DC stabilized (min. 24V max. 50V)
- Consumption: 60W (activation current) 3.60W (permanent unlocking)
- Controlled and manageable access
- Immediately locked (on the main bolt with a throw of 20mm) when the door closes
- Mechanical unlocking with the cylinder is always possible
- From the inside the lock (HX and HE) can always be opened mechanically using the handle or panic bar (emergency exit)
- Integrated signalisation of the bolt position (unlocked / locked)
- Integrated signalisation of the door position (open / closed)
- Integrated signalisation of the use of the cylinder
- Integrated signalisation of the use of the handle
- Stainless steel locking components, cylinder block, baseplate and striker plate
- The locking components are mounted on the solid baseplate using 6mm axes, which improves the free movement of the components and the lifespan of the lock
- Integrated microprocessor controlled intelligence
- Anti-saw pin in the bolt
- Striker plates (standard or adjustable) with cast on striker cup
- PCB protected in a polyurethane casted resin
- Door detection by 3 Hall-sensors
- Tested to achieve 1.000.000 cycles
- Tested to a frequency of 600 cycles a day
- Bolt resistance up to 40.000 N lateral force
- Unlocking under considerable pre-load is possible
- Specially designed security escutcheons (SE-17, SE-22, SEK-17, SEH-17, SEH-22 and SEHK-17) are available (optional)
- Available for both 17mm and 22mm cylinders
- Available in backsets of 25, 30, 35, 50 & 60mm (SA, SX & SE models)
- Available in backsets of 35 & 60mm (HX & HE models)
- Available with 2 cylinder openings (PSX, PSE & PME models)
- Distance from handle to cylinder is 72mm (HX & HE models)
- Tumbler 9 mm (complete bolt retraction at 30° tumbler rotation) (HX & HE models)

## Certificates:

• EN14846:2008

#### 0960-CPR-SKGIKOB.009752.xx.ENG **CERTIFICATE:** SKG-IKOB - ITT (report nr.): Declaration of Performance (doc. nr.):

#### **PRODUCT AND DESCRIPTION:**

13.00921	
DoP1011 (available on our website)	

## A1BxxSX, A1BxxSE, A1BxxyyPSX, A1BxxyyPSE A1BxxyyHX, A1BxxyyHE A1BxxSA

3	High frequency of use in public buildings
Μ	200'000 cycles with 25N sideload
9	Above 200 Kg, closing force max. 15N
С	Suitable for use on smoke/fire doors (30 min.)
0	-
L	High resistance (96h), -25°C to +70°C, level 2
7	Very high security with drill resistance
1	Status indication
1	Electrostatic discharge EN 61000-4-2 level 2
	3 M 9 C 0 L 7 1 1

#### **CERTIFICATE:** SKG-IKOB - ITT (report nr.):

#### **PRODUCT AND DESCRIPTION:**

Category of use
Durability and load on latchbolt
Door mass and closing force
Suitebility for use on fire/smoke doors
Safety
Corrosion resistance, temperature and humidity
Security
Security - electrical function
Security - electrical manipulation

#### SKGIKOB.009753.xx.ENG 13.00921

## A1BSANOCYL, A1BxxyyPSA

3	High frequency of use in public buildings
Μ	200'000 cycles with 25N sideload
9	Above 200 Kg, closing force max. 15N
0	Not intended for use on smoke/fire doors
0	-
L	High resistance (96h), -25°C to +70°C, level 2
7	Very high security with drill resistance
1	Status indication
1	Electrostatic discharge EN 61000-4-2 level 2



## Certificates:

• EN179:2008

CERTIFICATE: IFT - ITT (report nr.): Declaration of Performance (doc. nr.): 0960-CPR-SKGIKOB.009758.xx.ENG 13-000057-PR05 DoP1013 (available on our website)

#### **PRODUCT AND DESCRIPTION:**

A1BxxyyHX, A1BxxyyHE

<u>In combination with one of the following lever handles:</u> SEH-17 SEH-22

Category of use	3	High frequency of use (little care + chance of incidence and misuse)
Durability	7	200'000 test cycles
Door mass	6	up to 200 Kg
Suitebility for use on fire/smoke doors	В	Suitable for use on smoke/fire doors (EN1634-1)
Safety	1	Safety function
Corrosion resistance	4	240 h (very high resistance)
Security	5	5000 N
Projection of operating element	2	projection up to 100mm (standard projection)
Type of operation	Α	Emergency exit device with "lever handle" operation
Field of door application	В	Outwardly opening single exit door only



## Certificates:

• EN1125:2008

CERTIFICATE:	0960-CPR-SKGIKOB.009760.xx.ENG
IFT - ITT (report nr.):	13-000057-PR06
Declaration of Performance (doc. nr.):	DoP1014 (available on our website)
PRODUCT AND DESCRIPTION:	A1BxxyyHX, A1BxxyyHE

<u>In combination with Push-bar</u>: Push-bar ECO EPN 900 II-IV Push-bar ECO EPN 950

Category of use
Durability
Door mass
Suitebility for use on fire/smoke doors
Safety
Corrosion resistance
Security
Projection of operating element
Type of operation
Field of door application

High frequency of use (little care + chance of incidence and misuse)

- 200'000 test cycles
- **6** up to 200 Kg

3

7

В

4

2

2

Α

В

- Suitable for use on smoke/fire doors (EN1634-1)
- 1 Safety function
  - 240 h (very high resistance)
  - Grade 2, only one grade
  - projection up to 100mm (standard projection)
  - Panic exit device with "push-bar" operation
  - Single door only



### • DIN18251 - part 1:

40'000N resistance to lateral force on the bolt.





AVAILABLE BACKSETS : 25, 30, 35, 50 & 60 mm

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SANOCYL : unlocked without power - without cylinder block

- SA : unlocked without power with cylinder block (mechanical opening always possible with key)
- **SX** : locked without power with cylinder block (mechanical opening always possible with key)
- SE : locked without power (<u>only when door is closed</u>) with cylinder block (mechanical opening always possible with key)
- **PSX** : locked without power with 2 cylinder holes
- **PSE** : locked without power (<u>only when door is closed</u>) with 2 cylinder holes
- **PME** : mechanical version unlocking by cylinder; automatic locking when door closes



Both the standard striker plate (SSP) and the adjustable striker plate (ASP) have a cast on striker cup protecting the bolt. The ASP has the big advantage of being easily adjustable in case the lock and the striker plate need to get aligned better.



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- AVAILABLE BACKSETS : 35 & 60 mm
- HX : Locked without power. Mechanical opening with key is always possible from both sides. Mechanical opening with the handle is always possible from the secure side.
- HE Locked without power (only when the door is closed). Mechanical opening with key is always : possible from both sides. Mechanical opening with the handle is always possible from the secure side.

The handle on the inside mechanically retracts the locking components, always granting you an authorised exit. These HX and HE versions of the A1 locks are therefore suitable for emergency exit doors and are certified for EN179 and EN1125 European standards.





In some cases it might be desirable to prevent people from exiting a building freely. In that case a master-slave combination (of different A1 locks) can be installed. The "slave" will need an unlock impuls from an authorised person or alarm; the "master-lock" will be unlucked with the handle. Please contact us for more detailed information regarding possible combinations.



**Models with handle** 

Please make sure the following installation requirements are met to ensure the correct functioning of your B&BA1 electro-mechanical lock :

- Use BB25LSZH cable (2 x 1,5mm<sup>2</sup> + 5 x 0,22mm<sup>2</sup> shielded)!
- Using a 24V DC regulated power supply of minimum 2,5A per lock (ref. PWR2-24) the maximum distance between power supply and lock may not exceed 25m (using a 1,5mm<sup>2</sup> power cable)!
- Using a 48V DC regulated power supply of minimum 1,25A per lock (ref. PWR2-48) the maximum distance between power supply and lock may not exceed 300m (using a 1,5mm<sup>2</sup> power cable)!
- Measure the voltage coming to the lock and make sure that this never drops below 22,8V. This is important especially when the solenoid is activated (and should therefor be measured under a 50W load)!
- Make sure the distance between the lock and striker plate is min. 2mm and max. 6mm.
- Make sure the lock and striker plate are installed in a proper matter where the 2 are perfectly aligned (in closed door position they should be straight across from each other, both laterally and in height).
- Make sure that there is no friction on the bolt when being ejected and retracted (this should be tested after installation of the rubbers on the door).
- Make sure the holes for inserting the cylinder are large enough so the cylinder can be easily installed without being forced.
- Only cylinders with the lever at 5 and 7 (o'clock) can be used:



- Be careful when installing the cylinder. It needs to be positioned perfectly in order to be able to grab the moving parts (first a cylinder contact and then a slider). Please do not force when the rotor of the cylinder is not not turning smoothly, but check the position of the cylinder contact first (plate in bottom position) and make sure the cylinder is centered nicely.
- When connecting the power to the lock, the bolt will immediately unlock (in case of a fail secure) or remain unlocked (in case of a fail safe). Only when the lock detects its striker plate(by 3 permanent magnets in the striker plate), the bolt will be thrown out and locked.
- Every A1 lock (except the SANOCYL model) can be unlocked mechanically using a key. Locking it using a key is not possible however!
- The handle of a HX and HE model (= fail secure) will always (with or without current) unlock the lock. Therefor the panic function is always guaranteed.
- The locks need a permanent supply of 24V DC. In order to unlock a NO contact should be closed in order to bridge pin 2 and pin 3.
- DO NOT FILE with the lock already installed! Filings that end up in or around the lock will be attracted when the solenoid is activated and will eventually damage the lock. Compressed air can be used to clean out the lock if necessary.
- Do not use grease or oil in the locks. The necessary areas have been libricated during the assembly at the factory.
- A standard revision is recommended aftre 300'000 cycles or 5 years.
- Make sure the door is equipped with adequate hinges (according to door size and weight) to avoid "hanging" of the door.
- Make sure the door is equipped with an adequate door closer (according to door size and weight) !

Please note that in order for the lock to function correctly the above mentioned specifications need to be strictly followed. B&B LOCKS b.v.b.a. can not be held accountable for on-site interventions and reparations under warranty if the installation was not done according to these specific instructions !



# **Cylinder contact**

#### Starting position of the cylinder contact:

- the plate is positioned towards the bottom
- the opening in the plate is positioned in a way that the rotor of the cylinder slides into the rectacgular opening perfectly.
- the microswitch is not activated
- when turning the key, the rotor of the cylinder will slide the plate upwards, which will activate the microswitch. This gives an internal unlocking impulse to the lock.

#### End position of the cylinder contact:

- the plate is positioned towards the top
- The rotor of the cylinder has passed by the rectangular opening and can continue turning in order to move the mechanical slider downwards, which retracts the bolt.
- the microswitch remains activated, giving the lock a permanent unlocking impulse (when the door now closes the bolt will therefor not be thrown out).
- the opening in the plate is positioned in a way that the rotor of the cylinder slides into the rectangular opening perfectly when the key is turned back into it's original position (to be able to take out the key).
- when turning the key backwards, the rotor of the cylinder will slide the plate downwards, which will de-activate the microswitch.







vertical in the door frame:

Sanocyl SA SX SE



horizontal in the door frame:

Sanocyl SA



vertical in the door leaf:

# **BASEPLATE FIXATION BLOCKS** (BFB)

A1 locks can of course also be installed in existing doors. Since it is not always easy to make very accurate adaptions to a door when you are on site, we have developed Baseplate Fixation Blocks (BFB-1). Using these blocks the A1 lock will end up flush mounted on the profile (when profile used is 2mm).



## SURFACE MOUNT BRACKETS (SMB)

In case it is impossible to install the A1 lock in the door or the door frame because of its dimensions, a surface mount apllication may be considered. The Surface Mount Bracket (SMB) consists of 2 mounting blocks and 1 stainless steel cover (these need to be ordered seperately for the lock AND for the striker plate). Installation is on the secure side!





CONNECTOR 1 (2-pole): pin 1 (red, 1.5 mm<sup>2</sup>) = min. +24Vdc - max. +50Vdc / 60W pin 2 (blue, 1.5 mm<sup>2</sup>) = GND

#### CONNECTOR 2 (5-pole):

pin 3 (black, 0.22 mm<sup>2</sup>) = UNLOCK - opening impulse - NO contact connects pin 2 (GND) and pin 3 to unlock
pin 4 (brown, 0.22 mm<sup>2</sup>)= BOLT SIGNAL - transistorswitch to GND when bolt is locked 5Vdc to 36Vdc - max. load 100mA
pin 5 (yellow, 0.22 mm<sup>2</sup>)= DOOR SIGNAL - transistorswitch to GND when door is closed 5Vdc to 36Vdc - max. load 100mA
pin 6 (green, 0.22 mm<sup>2</sup>) = KEY SIGNAL - transistorswitch to GND when key is used 5Vdc to 36Vdc - max. load 100mA
pin 7 (grey, 0.22 mm<sup>2</sup>) = HANDLE SIGNAL - transistorswitch to GND when handle is used 5Vdc to 36Vdc - max. load 100mA









The unlock impulse is a NO contact, which makes a connection between pin 2 and 3 on the lock.

For the proper functioning of the lock it is important that the correct power and current arrives at the lock. Correct cable and power supply specifications must therefor be respected:

ACCESS CONTROL

9

#

ACCESS CONTROL

3

6

9

#

- cable: 2 x 1,5mm<sup>2</sup> (power cable) + 5 x 0,22mm<sup>2</sup> (signalisation wire); shielded (can be ordered separately with reference: BB25LSZH).
- power supply: 24V DC; 60W (per lock) stabilised power supply (can be ordered separately with reference: **PWR2-24**). The total distance between the lock and the power supply is limited to maximum 25m (this to avoid too large a drop in power supply on the cable).
- power supply: 48V DC; 60W (per lock) stabilised power supply (can be ordered separately with reference: **PWR2-48**). The total distance between the lock and the power supply is limited to <u>maximum 300m</u> (this to avoid too large a drop in power supply on the cable).

The **REL-4U** interface is available to turn the signals coming from the lock into potential free contacts. It also facilitates the connection of the access control (see picture below). ATTENTION: The first version of the REL-4 interface is not compatible with A1 locks powered by a 48Vdc power supply.

A1 BASIC - connection diagram with REL-4U



**REL-4U interface:** DIN Rail box with user friendly Phoenix plug-in screwconnectors.

• Inputs: CONNECTOR 1 (2-pole) - connection to the power supply: pin 1 = min. +24Vdc - max. +50Vdc / 60W (red, 1.5 mm<sup>2</sup>) pin 2 = GND (blue,  $1.5 \text{ mm}^2$ ) CONNECTOR 2 (2-pole) - unlocking impulse: pin 1 UNLOCK - NO contact connecting pin 2 (GND) to pin 3 to unlock pin 2 CONNECTOR 3 (7-pole) - connection to the lock: pin 1 = min. +24Vdc - max. +50Vdc / 60W (red, 1.5 mm<sup>2</sup>) pin 2 = GND (blue,  $1.5 \text{ mm}^2$ ) pin 3 = UNLOCK - unlocking impulse (black,  $0.22 \text{ mm}^2$ ) pin 4 = BOLT SIGNAL (brown, 0.22 mm<sup>2</sup>) pin 5 = DOOR SIGNAL (yellow, 0.22 mm<sup>2</sup>) pin 6 = KEY SIGNAL (green, 0.22 mm<sup>2</sup>) pin 7 = HANDLE SIGNAL (grey, 0.22 mm<sup>2</sup>)

## • Outputs:

<u>CONNECTOR 1 (12-pole) - potential free outputs (5V to 60Vdc - max. load 1A):</u> pin 1 = BOLT common pin 2 = BOLT locked (NO) pin 3 = BOLT unlocked (NC) pin 4 = DOOR common pin 5 = DOOR closed (NO) pin 6 = DOOR open (NC) pin 7 = KEY common pin 8 = KEY in use (NO) pin 9 = KEY not in use (NC) pin 10 = HANDLE common pin 11 = HANDLE in use (NO) pin 12 = HANDLE not in use (NC)





#### **Back-up battery connection**

Both the PWR2-24 and the PWR2-48 have a built-in battery charger for applications where autonomy is desired. This requires the installation of 2 optional 12V 7Ah batteries. An internal voltage stabilizer regulates upwards in order to supply the 24Vdc and 48Vdc output respectively.

The cabling to the batteries requires special attention because of the high short-circuit currents that occur when the connection wires are damaged. Although there is an internal fuse, it is good practice to put an extra fuse in the wiring close to the battery pack terminal (see pictures above and below).



It is possible to mount multiple A1 locks on 1 door in a "master-slave" configuration to obtain a multi-point locking system:





Production and sales:

# **B&B LOCKS bv**

Uilenbaan 88 unit 3 2160 Wommelgem Belgium Tel.: +32.3.326.36.30 E-mail: info@bb-locks.com

