SOLAR

User manual of high security level electronic lock

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General information

- Please read this user manual thoroughly before proceeding with lock settings.
- Each button pressing is confirmed by the lock with a sound signal. Finished or interrupted procedures are signalled with a red LED indicator and a sound signal (see signal list)
- Over a 30 second long pause before data entering causes current entry to be aborted. In case of errors in data entering, each procedure may be interrupted by pressing the Key [C]
- The lock manages over 10 different 6-digit codes for different users.
  Thus, in case of each code, the first digit is a user identifier
  It is used for identification and it is not a part of the 6-digit code.
- Regular checks of the safe and operation module for tampering are advised. If suspicious marks are found, the seller has to be contacted in order to exclude potential manipulation.
- ⚠ The following codes are a factory preset and they have to be changed because of safety reasons. Changes have to be introduced with open doors and closed bolt mechanism (bolts protrude from the door).

ID	Code
0	1 2 3 4 5 6
9	1 1 1 1 1 1
SUPER	1 1 1 1 1 1 1

Description of supercode function and operation can be found on page 7.

- The lock must be opened in order to change settings.
- ⚠ The lock is closed and opened using a motorized mechanism. The bolt mechanism must never be opened if the bolt motor is in motion. Doing this may result in lock damage.

- Symbols and their meaning

x sec.	Hold for X seconds		Long signal
 x sec.	Wait X seconds		LED lighted / blinking
	Short signal		

- Only alkaline batteries should be used, according to technical specification found in the appendix to this user manual.

Przegląd funkcji i opis

User

The lock may manage 10 different users. User number 0 is the administrator and the only user who can program the lock.

Closing modes

The lock may work in safe mode for 10 users, with opening delay and 4 modes of code integration. Alternatively, hotel mode may be activated for changing users (visitors) and money transport mode with delay for valuables transporters.

Certification of 4 digits rule

In order to control access to safe, the lock may be programmed for opening with delay and according to 4 digits rule (code integration).

Automatic closing

The lock may be closed automatically using the switch of bolt mechanism. The risk of leaving an open safe is minimized.

Lock against manipulation

After entering four invalid opening codes three long sounds signals are emitted and at the same time red LED controls light up. A five minute long operation blockade follows, which is visible by intermittent light of LED controls with 8 – seconds interval. If another invalid code is entered after the blockade, another, five minute long blockade period starts. This mode is suppressed only by entering a valid code.

Emergency power supply

If the battery becomes completely discharged and the lock may no longer be opened, the lock may be connected to an external power supply. In order to do this, please read Chapter 12, Paragraph 2, Emergency power supply.

Restarting

If, against the expectations, lock operation is impossible, the lock may be restarted. The restart does not cause loss of or changes to programmed settings of the lock.

1. Opening/Closing

1.1 Opening

Example administrator code. The procedure is identical for all 0-9 users.

Button	Signal	Description
*		Switching on
0		User ID
1 2 3 4 5 6		(0-9) Code
*		Opening
	3 sec. correct	error

After a valid code has been entered, one can move the bolt of the lock and open the safe.

The handle may be used only after complete lock opening (LED control flashes 1x).

After an incorrect code has been entered, the procedure may be repeated three more times. Then, a 5-minute blockade starts (blockade against tampering).

1.2 Closing

Ensure that the handle of the locking mechanism is in the closing position.

Button / example	Signal	Description
C		Closing
		Closed

After pressing the C **the opening handle may not be activated until the lock is closed.**

2. Code change

Example administrator code. The procedure is identical for all 0-9 users. Each of the users may change only its own code. Users 1-9 have to be entered first. User 9 is entered into the system as a factory pre-set.

Button	Signal	Description
* 3 sec.		Programming start
0		User ID (0-9)
1 2 3 4 5 6		Code
0		Code change start
? ? ? ? ? ?		Entering new code
*		Confirmation
? ? ? ? ? ?		Code repetition
*		Confirmation and end
	Change	error

Lighted red LED control and long sound signal means that the code has not been changed because of an error while entering code. The old code is inactive. Actions have to be repeated.

After a successive code change, it has to be tested by multiple opening and closing with open safe doors and closed bolt mechanism.

3. User creation and deletion

The administrator (user 0) may enter and delete 1-9 users.

User 9 is factory pre-programmed with [1][1][1][1][1][1], code which must be deleted or changed.

Button	Signal	Description
[*] 3 sec.		Programming start
[0]		User ID (administrator)
[1][2][3][4][5][6]		Code
[1]		Start user management
[?] (ID 1-9)		User ID (1-9)
[?] (0 / 1)		0 = delete | 1 = enter
[*]		Confirmation and end
	 Entered	 error

✓ Once the user has been entered, its code is set to [1][1][1][1][1][1] **and it must be changed**

✖ Lighted red LED control and long sound signal means that because of an error during data entering the user has not been entered or deleted. Actions have to be repeated.

⚠ If the user has already been entered, entering the same user results in code resetting to [1][1][1][1][1][1] and it must be changed again. Forgotten user code may also be restored to factory settings.

4. Closing mode setting

The lock may be set by the administrator (user 0) in three different modes for different areas of use.

Mode	Description
0	Safe mode (standard setting): Programmed opening delay is valid for all users (0-9)
1	Hotel mode: An additional guest code may be set. Without entering the guest code the lock may not be closed. Users 0-9 may delete an active guest code.
2	Money transport mode: Programmed opening delay is valid for users 0-6, users 7-9 may open the lock without a delay

Button	Signal	Description
[*] 3 sec.		Programming start
[0]		User ID (administrator)
[1] [2] [3] [4] [5] [6]		Code
[2]		Mode selection start
[?] (0-2)		Mode 0-2 selection (Table)
[*]		Confirm and finish
	 Set	 error

Lighted red LED control and a long sound signal means that because of an error during data entering the mode has not been changed. The factory pre-set mode 0 is active. Actions have to be repeated.

5. Sound signal volume

The administrator (user 0) may set the sound signal volume of the lock in a quiet or loud mode. The factory pre-set mode of the signal is (1) loud.

Button	Signal	Description
*		Programming start
0		User ID (administrator)
1 2 3 4 5 6		Code
3		Sound regulation start
? (0 / 1)		0 = quiet | 1 = loud
*		Confirm and finish
	 Set	 error

 Lighted red LED control and long sound signal means that because of an error during data entering, volume has not been changed. Actions have to be repeated.

6. Opening protocol reading

User ID (administrator)
The lock records the last 32 users who opened it and other important events. This protocol may be read by the administrator (user 0). Reading takes place using different number of sound and optical signals according to the table below. The last user using the lock is shown as the first one in the recording.

Button	Signal	Description
*		Programming start
0		User ID (administrator)
1 2 3 4 5 6		Code
4		Reading start
*		Confirmation start

Signal	Description	Signal	Description
1x	User 0	8x	User 7
2x	User 1	9x	User 8
3x	User 2	10x	User 9
4x	User 3	11x	Supermaster
5x	User 4	12x	Guest code
6x	User 5	13x	Mechanical lock
7x	User 6	14x	Insufficient battery voltage
1x	User / event separation		
1x	Separation of user pairs during code integration		

7. Supercode functions

The supercode is factory pre-set [1][1][1][1][1][1][1] (7x1). It may open the lock and reset administrator code.

7.1 Supercode change

The administrator (user 0) may change the supercode.

Button	Signal	Description
[*] 3 sec.		Programming start
[0]		User ID (administrator)
[1][2][3][4][5][6]		Code
[5]		Supercode change start
[?][?][?][?][?][?][?]		Entering new supercode
[*]		Confirmation
[?][?][?][?][?][?][?]		New supercode confirmation
[*]		Confirmation and finish

⚠ The supercode is not a regular opening code, it is designed for use in emergency situations. Factory settings must be changed because of safety reasons. Even if the supercode is used as an exception, and thus is difficult to remember, it should not be noted down.

7.2 Opening using the supercode

If the administrator code is lost, during an active blockade or if a user is deleted despite active code integration, the lock may still be opened using supercode.

Button	Signal	Description
* ca. 10 sec.		Supercode opening start
1 1 1 1 1 1 1		Supercode
*		Opening
	3 sec. Open	error

7.3 Resetting administrator code using supercode

If the administrator code is lost, if a blockade is active or if a user is deleted despite active code integration, the lock may still be open using supercode.

Button	Signal	Description
* 33 sec.	3 sec. 30 sec.	Reset start
0		
1 1 1 1 1 1 1		Current supercode
0		
1 1 1 1 1 1 1		Current supercod
*		Confirmation and finish
	Changed	error

After a successful reset, the administrator code is set as 1 1 1 1 1 1 1 and it must be changed.

8. Code integration (4 digits rule)

Activation of code integration function or 4 digits rule provides the opportunity of opening the lock simultaneously only for 2 users.

8.1 Code activation and deactivation

The administrator (user 0) may activate and deactivate the function of code integration.

Button	Signal	Description
* 3 sec.		Programming start
0		User ID (administrator)
1 2 3 4 5 6		Code
6		Code integration setting
? (0 / 1)		0 = deactivation | 1 = activation
*		Confirmation
	 Changed	 error

8.2 Opening using two user codes

Button	Signal	Description
* 3 sec.		Switching on
1		User ID (0-9)
1 1 1 1 1 1		Code
*		1. Entering finish
*		2. Switching on start
2		User ID (0-9)
1 1 1 1 1 1		Code
*		Opening
	 3 sec.	correct error

9. Time functions

The lock may be programmed for delayed opening after 0-255 minutes, which starts the moment the code has been entered and lock opening takes place after the programmed delay time. Opening delay is related to opening time window. It defines the time in which the lock may be opened after the delay period has ended. This time may also be set for a period of 0-255 minutes.

9.1 Opening delay (OD) activation/deactivation

The administrator (user 0) may activate or deactivate delay time.
User ID (administrator)

Button	Signal	Description
[*] 3 sec.		Programming start
[0]		User ID (administrator)
[1] [2] [3] [4] [5] [6]		Code
[7]		Delay settings
[?] [?] [?] (000 - 255)		000 = turned off | 255 = max.
[?] [?] [?] (000 - 255)		Confirmation of # of minutes
[*]		
	 Set	 error

9.2 Opening with active opening delay (OD).

Button	Signal	Description
*		Switching on
1		User ID (0-9)
1 1 1 1 1 1		Code
*		Delay start
	5 sec. 5 sec.	Delay lasts
		Opening readiness
*		Code repetition
1		User ID (0-9)
1 1 1 1 1 1		Code
*		Opening
	3 sec. Correct	error

Time window for repeated code entering is programmed by opening time window (standard 5 minutes). After this period of time, the entire procedure has to be repeated.

9.3 Opening time window setting (TW)

Opening time windows defines period of time in which the lock may be opened after the delay time. This time may be set by the administrator (user 0).

Button	Signal	Description
* 3 sec.		Programming start
0		User ID (administrator)
1 2 3 4 5 6		Code
8		TW setting
? ? ? (000 - 255)		001 = 1 min | 255 = 255 min
? ? ? (000 - 255)		Repetition of # of minutes
*		
	Set	error

10. Automatic lock activation and deactivation

A switch of the bolt mechanism has to be installed in order to use this function. If this function is not activated, and the bolt mechanism is not open, the lock will be automatically blocked after 60 seconds.
The automatic lock allows control over the following functions:

Function	Description
0	Automatic lock deactivated. The lock is closing after pressing [C]
1	Automatic lock activated, switch active. The lock may be blocked. by pressing [C] if only the lock mechanism is closed.
2	Automatic lock without sound signal. The lock is blocked automatically after closing the bolt mechanism.
3	Automatic blockade with sound signal. The lock is blocked automatically after closing the bolt mechanism. Lack of blockade is signalled by a sound.

Button	Signal	Description
[*] 3 sec.		Programming start
[0]		User ID (administrator)
[1] [2] [3] [4] [5] [6]		Code
[9]		Code integration setting
[?] (0 - 3)		Function introduction (Table)
[*]		Confirmation
	 Changed	 error

11. Hotel function in closing mode 1

11.1 Guest code programming

The lock must be open and may remain closed after entering the guest code.

Button	Signal	Description
* 3 sec.		Programming start
1 2 3 4 5 6		Guest code
*		Confirmation and finish
	 Set	 error

11.2 Guest code programming

The lock must remain open.

Button	Signal	Description
* 3 sec.		Programming start
0		Deletion
*		Confirmation and finish
	 Deleted	 error

12. Power supply

12.1 …

The device is powered by a 9V block battery placed in the battery compartment (Note: use only alkaline or lithium batteries). Internal battery compartment with a latching cover is accessible with open doors and depending on the cabinet type is located in door casing or directly on the internal side of the doors (take care of proper positioning of battery poles). Battery replacement is necessary then, when during lock opening or closing a long sound signal can be heard. Batteries should be quickly replaced in such a case, because there is no safe guarantee of use after about ten consecutive openings.

12.2 Emergency power supply

In case of complete battery discharge with the safe closed, follow the following procedure.

1. Separate the operation module from the fixture, gently prying module edge using a flat head screwdriver between buttons 4 and 7 and 6 and 9.

2. Pull the keyboard with cables out, at ca. 5 cm.
3. Place a new 9V battery in both poles, on the bottom side (big on small, small on big). At the same time, hold the keyboard with a finger, between buttons 0 and 9.
4. Open the safe according to the user manual – Opening paragraph.
5. Open the battery compartment on the internal side, carefully disconnect the new battery from the internal side of the keyboard and replace the used battery with it.
6. Carefully insert the keyboard cable into the door and latch the keyboard in the fixture.

⚠ Taking the keyboard out of the fixture results in markings on the fixtures, it is a desired effect, protecting against illegal tampering at the lock by unauthorised individuals. One can order a new fixture from the manufacturer, if necessary.

14. Restarting

The restarting function is helpful with deletion. In order to do this, press and hold the [0] button for at least 30 seconds, then release. After another 5-10 seconds, a single diode signal combined with a sound is generated, meaning that the restarting procedurę has been completed.

13. Signal table

Function	short	long	LED	Sound
Data entering functions				
Digit entering	1 time		x	x
„Star“ button after entering correct data	1 time		x	x
„Star“ button after entering incorrect data		1 time	x	x
„Star“ button after programming start	3 times		x	x
„Star“ button after start of supercode entering	3 times		x	x
Papillary lines reading			Continuous light	
Opening delay functions				
Opening delay start		1 time	x	x
Opening delay lasts (every 8 seconds)	1 time		x	
Opening delay end	2 times		x	x
Opening window lasts (every 8 seconds)	1 time		x	x
Time window end	2 time		x	x
System monitoring functions				
Batteries discharged		1 time	x	x
Lock opens (as long as motor operates)			x	
Lock open	1 time		x	x
Lock closes (as long as motor operates)			x	
Lock closed	1 time		x	x
Motor blocked electronically		2 times	x	x
Start of manipulation blockade		3 times	x	x
Manipulation blockade functions				
Manipulation blockade lasts (every 8 Seconds for 5 minutes)	1 time		x	
End of manipulation blockade	2 times			x
Opening protocol reading functions				
Odczyt numeru użytkownika	n+1 times		x	x
Znak rozdzielający pomiędzy otwarciami	1 time	1 time	x	
Znak rozdzielenia 2 użytkowników		1 time	x	x

14. Technical parameters and certification

The lock has been designed for use in interiors
Temperature 10°C – 40°C
Relative humidity 30% - 85%
Standby current < 0,1mA
Battery power supply: 9V nominal (min. 3V under the load of 0,5A/max. 12V for all load levels)
9V batteries, block battery of alkaline or lithium type
Battery lifetime under normal use is ca. 2 years.
Maximum bolting force 25 N
Lock class II (B), approval number M103343
Tested by VdS-Köln according to VdS 2344:2005-12, VdS 2841: 2005-12 and EN 1300: 2004-06