PLBE10000
Nexello keypad

Important notes and FAQs about this product and other products can be found on the website
www.abus.com

Manual version: 1.1
firmware version: 1.35

English

Introduction

Dear customer,

we are pleased that you have decided to use our product and thank you for your trust! You have made a good choice.

This keypad (hereinafter referred to as "device") has been developed and manufactured with the greatest care. Please read these operating instructions completely and observe all operating and safety instructions, as this will ensure the best possible handling of the device. This document is to be considered as assembly and maintenance instructions.

Hereby ABUS Security-Center declares that the enclosed product complies with the following guidelines concerning the product:

RED Directive 2014/53/EU, EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU, RoHS Directive 2011/65/EU. The full text of the EU Declaration of Conformity is available at the following Internet address

www.abus.com/product/PLBE10000

It can also be obtained from the following address:

ABUS Security Center GmbH & Co KG,

Linker Kreuthweg 5, 86444 Affing, GERMANY

If you have any questions or suggestions, please contact our customer service:

Mail:	ABUS Support, Linker Kreuthweg 5, 86444 Affing, Germany
E-mail:	support@abus-sc.com
Phone:	+49 8207 959 90 0
Opening hours hotline:	Mon-Thu: 08 - 17; Fri: 08 - 14

Disclaimer

This operating manual has been prepared with the utmost care. Should you nevertheless notice any omissions or inaccuracies, please notify us in writing at the address given above.

Your rights are limited to the repair or replacement of this product in the condition it was delivered. ABUS Security Center assumes no liability for any special, incidental or consequential damages, including but not limited to loss of revenue, loss of profits, restrictions on use of the software, loss or recovery of data, cost of replacement equipment, downtime, property damage and claims by third parties, as a result of, and without limitation, the use of the software.a. contractual, statutory or damage compensation claims arising from the warranty, irrespective of other limited warranty provisions or those implied by law, or in the event that the limited warranty does not apply, the scope of liability of ABUS Security Center is limited to the purchase price of the product.

The contents of this manual are subject to change without prior notice.

English

Important Safety Instructions

Appropriate use

Use the device exclusively for the purpose for which it was built and designed! Any other use is considered improper!

Damage caused by not following these safety instructions invalidates the warranty. We assume no liability for consequential damage!

Unpacking

While unpacking the device, handle it with extreme care. Packaging and packaging aids are recyclable and should always be sent for recycling.

If the original packaging is damaged, first check the device. If the unit is damaged, return it with the packaging and inform the delivery service.

	**Please ensure that the packaging contains the DSK (Device Specific Key) card. This card shows the DSK of your ABUS Z-Wave device. Please store it in a safe place. Every S2 (Security 2) certified Z-Wave controller needs the DSK to include (teach-in) the device.**

Installation site Operating environment

Do not place any heavy objects on the unit. The unit is only designed for operation in rooms with the appropriate temperature or humidity (e.g. bathrooms) or excessive dust. For exact specifications, check the technical data of the individual units. Ensure that there is always sufficient ventilation, that no direct heat sources act on the device, that no direct sunlight or strong artificial light falls on devices for indoor use, that the device is not in the immediate vicinity of magnetic fields (e.g. loudspeakers), that no open fire sources (e.g. Do not stand on or next to the device, avoid contact with splashing or dripping water on devices for indoor use and aggressive liquids, do not operate the device near water, in particular, never submerge the device (do not place objects filled with liquids, e.g. vases or drinks on or next to the device), do not allow foreign objects to enter the device, do not expose the device to strong temperature fluctuations, as air humidity can condense and lead to electrical short circuits, do not expose the device to excessive shocks and vibrations.

Children

Do not allow electrical equipment to get into the hands of children! Never allow children to use electrical appliances without supervision. Children are not always able to recognize possible dangers correctly. Small parts can be life-threatening if swallowed. Also keep the packaging films away from children. There is a danger of suffocation! This device should not be handled by children. Springy parts can jump out if used improperly and cause injury (e.g. eyes) to children.

Notes on handling batteries

- Make sure that batteries are not in the hands of children. Children could put batteries in their mouths and swallow them. This can cause serious damage to health. In this case, consult a doctor immediately!
- Normal batteries must not be charged, heated or thrown into an open fire (danger of explosion!)
- Do not expose the battery to a heat source or direct sunlight and do not store it in a place with a very high temperature.
- The battery must not come into contact with water.
- The battery must not be disassembled, punctured or damaged.
- The battery contacts must not be short-circuited.
- Replace weakening batteries in good time.
- Always replace all batteries at the same time and use batteries of the same type. Ideally, use batteries of the same manufacturer as those from the original scope of delivery, as the device has been intensively tested with these batteries and thus ensures optimal function.
- Leaking or damaged batteries can cause burns if they come into contact with the skin. In this case use suitable protective gloves. Clean the battery compartment with a dry cloth.

Cleaning

- Dusty equipment must be cleaned. Dust deposits in the air slots can be sucked off or blown out. If necessary, the dust can be removed with a brush.
- The surface can be cleaned with a cloth slightly moistened with soapy water. Use only suitable microfibre cloths for high-gloss surfaces.
- Make sure that no water gets inside the device!
- Do not put the appliance in the dishwasher!
- Do not use any sharp, pointed, abrasive, caustic cleaning agents or hard brushes!
- Do not use chemicals!
- Do not clean the device with easily flammable liquids!

Notes on the disposal of the device

Attention: The EU Directive 2012/19/EU regulates the proper return, treatment and recycling of used electronic equipment. This symbol means that, in the interest of environmental protection, the device must be disposed of at the end of its service life in accordance with the applicable legal regulations and separately from household or commercial waste. The old device can be disposed of at the appropriate official collection points in your country. Observe local regulations when disposing of the materials. For further details about the take-back (also for non-EU countries), please contact your local administration. Separate collection and recycling helps to conserve natural resources and ensures that all regulations for the protection of health and the environment are observed when recycling the product.

English

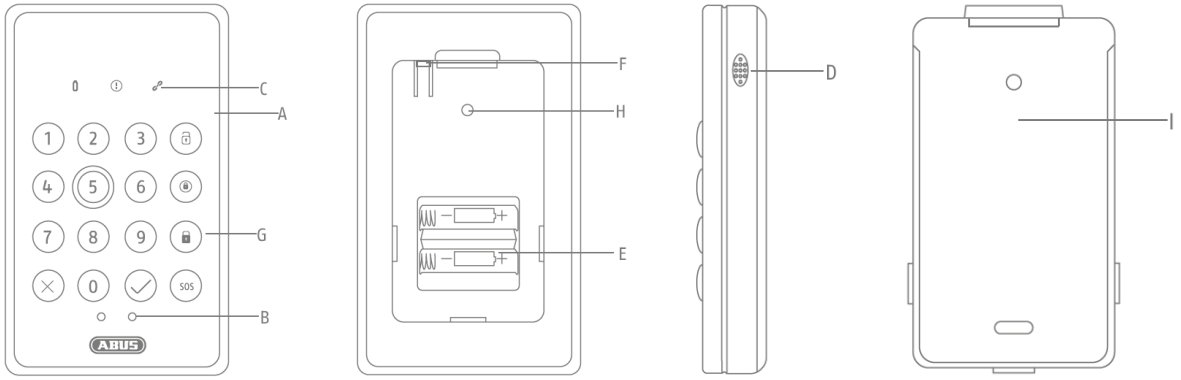
Table of contents

1. Product launch

1.1. Scope of delivery

- Nexello keypad
- 2x Duracell CR123A battery
- mounting material: screws, dowels
- Quick guide & safety instructions
- DSK card

1.2. Device features



No	Designation	Comment
A	Front cover	Slided onto the holder
B	Proximity and light sensor	For automatic wake-up of the keypad when approaching and automatic control of the key illumination
C	LED display	Status display for various processes, see 1.3
D	Speaker	For acoustic signalling of keystroke, status and feedback signals
E	Battery compartment	Observe polarity
F	Sabotage contact	Triggers sabotage alarm
G	Keys	For entering codes, activating and deactivating and triggering a panic alarm
H	Link Button	Manual triggering of the wake-up command, inclusion, exclusion and reset
I	Backplate	For mounting on the wall

1.3. Key and LED description

Button / LED	Description	Function
	Battery LED	Lights green: Capacity above 15%. Lights yellow: capacity 10% - 15% Flashing Yellow: Capacity below 10%.
	Inevitability LED	Lights yellow: Faulty state, e.g. open window, prevents activation of the system
	Link LED	Lights green: Good signal to the controller Lights Yellow: Bad or no signal to the controller
0 - 9	Digits 0-9	To enter the code
	Confirm code entry	Sends the previously entered code
	Cancel code entry	Previously entered code will not be sent
	Deactivate system	Sends the previously entered code with the command to deactivate
	Activate system internally	Sends the previously entered code with the command for internal activation
	Activate system	Sends the previously entered code with the command to activate
SOS	Emergency alarm	Long pressure sends emergency alarm for e.g. panic alarm or medical emergency

1.4. Operating principle

The device was developed for use in alarm and home automation systems that use the Z-Wave wireless standard. The device has the following functions:

Code entry

The numbers can be used to send codes to a Z-Wave controller. These code entries can be sent either with or without additional commands, such as “Activate System”. Code entries without additional commands are suitable, among other things, for triggering various home automation scenarios. The individual automations are programmed in your Z-Wave controller.

Triggering an emergency alarm

With the aid of the independent button for the emergency alarm, for example, a panic alarm or medical emergency can be triggered.

Display of the system status

The device can be used to signal a changed status and the current status (e.g. system is activated).

1.5. Performance features

The device..:

- ... is a battery operated keypad
- ... is due to its design only suitable for wall mounting
- ... is Z-Wave Plus compatible & certified
- ... supports the Z-Wave S2 standard (Security 2)
- ... has a low battery warning function
- ... was developed for indoor installation

1.6. Use in systems of different manufacturers

This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

This product is based upon a slave Role Type implementing Security 2 with the Access Control Security Class. The command classes are supported only when the Access Control Security Key has been granted, **therefore an S2 security enabled controller is required to operate the product.**

1.7. DSK code

The DSK code (Device-Specific Key) is the device-specific key of your device and is required for secure inclusion (teach-in) via S2 on the Z-Wave controller. The first 5 digits, known as the PIN Code, of the DSK can be found underneath the QR Code on the back of the product.

Please enter them in the inclusion process when prompted. Alternatively, you can transfer the entire DSK code that you find on the enclosed DSK card to the Z-Wave controller via QR Code Scan. Please keep the DSK card in a safe place!

Hint:

We recommend the secure S2 inclusion (must be supported by the Z-Wave controller). Please scan the DSK QR code when prompted by your App.

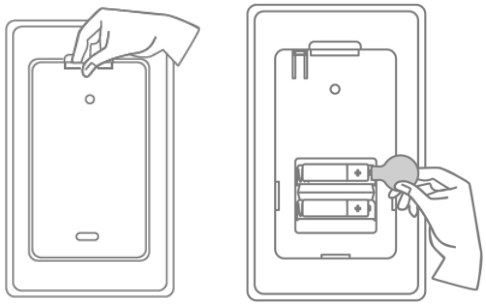
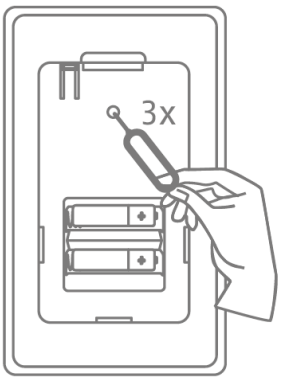
2. Functional overview

2.1. Inclusion / Teach-in device

This product supports SmartStart:

SmartStart-enabled products can be added to a Z-Wave network by scanning the Z-Wave QR code present on the product with a controller that provides SmartStart integration. No further action is required, and the SmartStart product will be automatically added within 10 minutes of powering up near the network.

Alternative Inclusion

	Remove the rear cover and remove the safety strip on the battery compartment. We recommend using only the original Duracell battery supplied.
	If your Z-Wave controller does not support SmartStart, follow these instructions for Product Classic Inclusion: Activate the inclusion mode (teach-in mode) on the Z-Wave controller. (for more details, please refer to the Z-Wave controller's user manual) Or press the "+" button (Include / Add) in your Z-Wave app and follow the instructions to set the Z-Wave controller to include mode.
	Keep the device within range of the Z-Wave controller. Press the Link button 3 times quickly (within 1.5 seconds) to start the inclusion on the device. The Link LED starts flashing green for up to 60 seconds
	Successful inclusion is displayed in the app or on the Z-Wave controller and the link LED on the device lights up green. Repeat the inclusion process if it was not successful. If a new attempt fails as well, first carry out a factory reset on the device, see 2.5.

2.2. Planning, assembly and installation

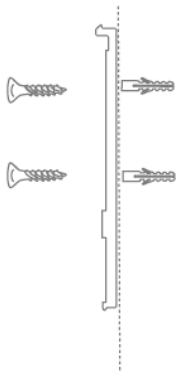
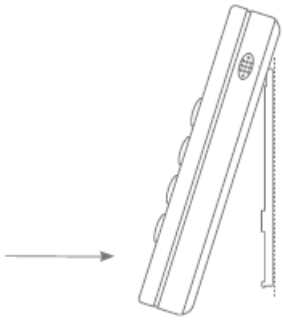
The device uses low power radio signals to communicate with the Z-Wave controller. For best results, please note the following:

- Please do not attach directly to metal planes or metal constructions, as this may limit the range.
- The device has a radio range of up to 40 m indoors.
- The battery life of the device is reduced if the wireless connection to the Z-Wave controller is not direct but via a repeater.

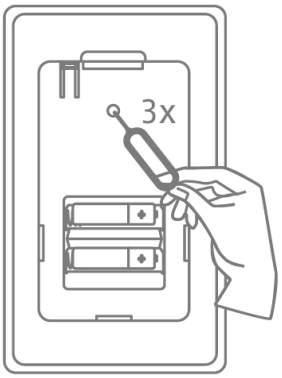
Select installation location

The device is only suitable for indoor installation.

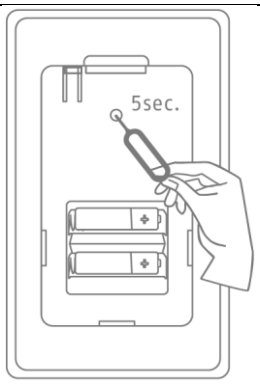
Assembly instructions:

	Fix the rear panel of the keypad firmly to the wall with screws and dowels.
	Then carefully place the front cover from above and snap it into place facing the wall.

2.3. Exclusion / teach-out device

	Activate the exclusion mode (learn mode) on the Z-Wave controller. (for more details, please refer to the Z-Wave controller's user manual) Or press the "**-**" button (Remove / Exclusion) in your Z-Wave app and follow the instructions to set the Z-Wave controller to Exclusion mode.
	Press the Link button 3 times quickly (within 1.5 seconds) to start the exclusion on the device. The Link LED starts flashing green for up to 60 seconds
	The successful exclusion is displayed in the app or on the Z-Wave controller and the link LED on the device lights up green.

2.4. Resetting the factory settings

	Press and hold the Link button for at least 5 seconds. The device is now reset to factory settings. **Hint:** Please use this procedure only if the primary network controller is missing or otherwise not functional. If the device is set to factory default, the status is set to "not included" and the association settings and possible configurations are reset to default.

2.5. System status

Various events can be communicated to the keypad. These events are distinguished by the illumination of the LEDs and the loudspeaker behaviour.

Event	LEDs	Speaker
System was deactivated	"Disable System" lights up	Beeps twice in one second
System has been activated	"Activate system" lights up	Beeps once for one second
System was activated internally	"Activate internal system" lights up	Beeps once for one second
Alarm	All system and emergency alarm LEDs flash for 10 seconds	
Inevitability	Inevitability LED lights up	Beeps 1 time long and 2 times short
Input delay		Beeps for a set duration
Output delay		Beeps for a set duration
Invalid code	Flashing 3 times briefly	Beeps 3 times briefly

2.6. Code entry

First enter the assigned code by pressing the keys on the keypad and **then** acknowledge the code with the acknowledgement keys (e.g. activate system).

The keypad transmits the code together with the command and checks whether the necessary authorizations are available.

If the code is only confirmed, the security system can use it to activate a home automation system.

①⑨②④ +  = Code "1924" is transmitted with the command "deactivate"

①⑨② +  = Code is aborted

④②⑨① +  = Code "4291" is confirmed to the system

 + ①⑨②④ = Command "deactivate" is transmitted without code. 

3. Advanced Z-Wave Parameters

3.1. Association Groups

Z-Wave devices can control other devices directly. This direct control is called association in Z-Wave. The device ID of the device to be controlled must be stored in the controlling devices. This is done in so-called association groups. An association group is always linked to an event in the controlling device (keystroke or triggering of a sensor). When this event occurs, a control command - usually a BASIC SET - is sent to all devices stored in an association group.

The device supports one association group:

Group-Number	Maximum Devices	Group name	Profile	command class
Group 1	5	Lifeline	General	Notification report Battery report Device Reset Locally Notification Entry control

Group 1 (Association Z-Wave Controller)

- The Lifeline Association is automatically established between the Z-Wave controller and the device at inclusion and defines what information is exchanged between the Z-Wave controller and the device.

3.2. Reports

notification report

Event	Type	Attribute	Parameters Length	Event Parameters
Motion alarm	0x07	0x08	0x00	
Motion alarm acknowledgement	0x07	0x00	0x01	0x08
Sabotage alarm	0x07	0x03	0x00	
Sabotage alarm acknowledgement	0x07	0x00	0x01	0x03
Battery alarm (replace soon)	0x08	0x0A	0x00	
Battery alarm (replace now)	0x08	0x0B	0x00	
Battery alarm acknowledgement	0x08	0x00	0x01	0x0A / 0x0B

battery report

Value	Description
0x05 - 0x64 (5 – 100)	Battery charge level in percent (%)
0xFF (256)	Low battery

Indicator Get Report

Value	Description
0x00 (0)	No state
0x01 (1)	Internally active
0x02 (2)	Active
0x03 (3)	Deactive

3.3. Configuration parameters

Z-Wave products can be used directly after inclusion in the network. However, configuration settings can be used to adapt the behaviour of the device even better to the requirements of the application and to activate additional functions.

Use your Z-Wave controller to initiate the changes to the parameters.

Para-meter	Byte size	Function	Default value	Description
2	1	Threshold value battery alarm	10	Percentage value from when the low battery alarm should be transmitted. ▪ Adjustable from 5 - 50 in percent (Hexadecimal: 0x05 - 0x32)
3	1	Proximity sensor Active / Deactive	1	Activates / deactivates the proximity sensor. ▪ 0 = Sensor is deactivated ▪ 1 = Sensor is activated (Hexadecimal: 0x00 - 0x01)
4	1	Waiting time between two motion alarms	5	Waiting time from one motion alarm to the next triggering. ▪ Adjustable from 2 - 30 in seconds (Hexadecimal: 0x02 - 0x1E)
5	1	Proximity sensor Sensitivity	9	Sensitivity value of the proximity sensor. The value 31 is the lowest sensitivity. The value 4 is the highest sensitivity. ▪ Adjustable from 4 - 31 (Hexadecimal: 0x00 - 0x0A)
6	1	Light sensor Active / Deactive	1	Activate/deactivate the light sensor. ▪ 0 = Sensor is deactivated ▪ 1 = Sensor is activated (Hexadecimal: 0x00 - 0x01)
7	1	Threshold value for day / night	50	Threshold value from which LUX value the day or night value is sent. ▪ Adjustable from 0 - 255 in Lux (Hexadecimal: 0x00 - 0xFF)
8	1	Key Tones Active / Deactive	1	Activates / deactivates the button tones. ▪ 0 = Sound is deactivated ▪ 1 = Sound is activated (Hexadecimal: 0x00 - 0x01)
9	1	Status display Active / Deactive	1	Enable / disable the status display when the device wakes up. ▪ 0 = display is deactivated ▪ 1 = Display is activated (Hexadecimal: 0x00 - 0x01)

3.4. Supported command classes

Command class	Version
Association	version 2
Association Group Info	Version 3
Battery	Version 1
Configuration	Version 4
Device Reset Locally	Version 1
entry control	Version 1
Firmware Update Md	Version 5
Indicator	Version 3
Manufacturer Specific	version 2
Multi Channel Association	Version 3
Notification	Version 8
Power level	Version 1
Security	Version 1
Security 2	Version 1
Supervision	Version 1
Transport Service	version 2
Version	Version 3
Z-Wave Plus Info	version 2

3.5. Supported security levels

- Security S2 Access
- Security S0 Authenticated

4. Technical data

Parameters	PLBE10000
Dimensions (H x W x D)	140 x 84 x 26 mm
Weight	185 g
Operating temperature	>0° – 40°C
IP class	IP 20 (indoor area)
Radio frequency	868.42 MHz (Z-Wave Plus, Europe)
Modulation	FSK (BFSK/GFSK)
Transmitting power:	0 dbm
Power supply	3V DC
Type of battery	2x CR123A
Battery life	~12 months
Sabotage protection	Yes
Firmware updateable	Yes, OTA
Z-Wave manufacturer ID	0x0403
Z-Wave Product Type ID	0x0004
Z-Wave Device ID	0x0001
Z-Wave SmartStart supported	Yes
Z-Wave Plus supports	Yes
Z-Wave Network Security	Yes
Z-Wave AES-128 Security (S0)	Yes
Z-Wave S2 Security	Yes (S2 Authenticated)
Z-Wave Chip Generation	700
Z-Wave Device Type	secure keypad
Z-Wave Role Type	Listening Sleeping Slave
Z-Wave DevKit Version	07.12.02