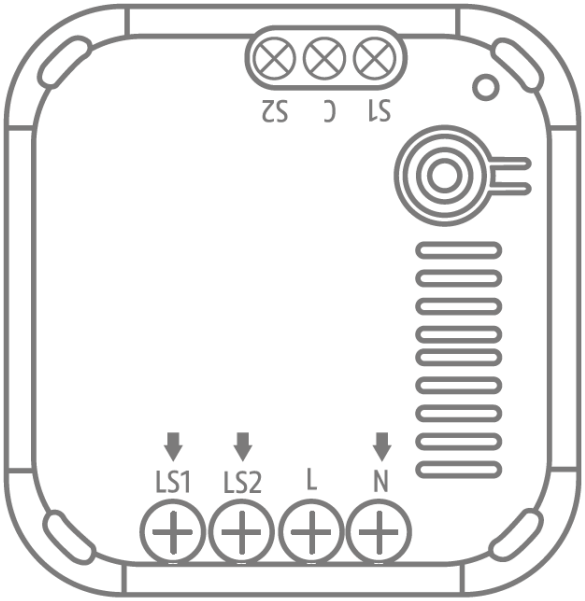
PLHA10000
Z-Wave 230V relay module



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

Version 1.1

English

Inauguration

Dear customer, dear customer,

we are pleased that you have chosen our product and thank you for your confidence! You made a good choice.

This relay module (hereinafter referred to as the "device") has been developed and manufactured with the utmost care. Please read these operating instructions completely and observe all operating and safety instructions to ensure the best possible handling of the device. This document is intended as an installation and maintenance manual.

If you have any questions, please contact your specialist trade partner or contact our customer service:

Mail: ABUS Support, Linker Kreuthweg 5, 86444 Affing, Germany
E-mail: support@abus-sc.com
Phone: +49 8207 959 90 888
Hotline opening hours: Mon-Thu: 08 - 17 h; Fri: 08 - 14 h

ABUS Security-Center hereby 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/PLHA10000

It can also be obtained from the following address:

ABUS Security Center GmbH & Co. KG,
Left Kreuthweg 5, 86444 Affing, GERMANY

disclaimer

These operating instructions have been prepared with the utmost care. Should you nevertheless notice any omissions or inaccuracies, please inform us in writing at the above address.

Your rights are limited to the repair or replacement of this product as 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 the use of the Software, loss or recovery of data, cost of replacement equipment, downtime, property damage and claims by third parties, arising out of or in connection with the use of the Software, or any breach by ABUS Security Center of its obligations under this Agreement.a. any warranty, contractual, statutory or compensatory damages claims, notwithstanding any other limited or implied warranties, or if the limited warranty does not apply, ABUS Security Center's liability shall be limited to the purchase price of the Product.

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

English

Important safety instructions

The installation of the device is a work on the mains voltage. It must therefore be carried out by a specialist in accordance with local installation regulations and connection conditions.

Make sure that the circuit is protected by a 16-amp circuit breaker or a suitable equivalent fuse.

If you are not yet familiar with the installation and operation of the device, for your own safety, be sure to read the complete instruction manual first.

During installation, the electrical cable to be connected must be voltage-free. Therefore, the first thing to do at the fuse box is to switch off the current and check that there is no voltage with a voltage tester.

Intended Use

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

The product is designed exclusively for indoor installation in a flush-mounted box.

Damage caused by non-compliance with these safety instructions will void the warranty. We assume no liability for consequential damages!

Unpack

While unpacking the device, handle it with the utmost care. Packaging and packaging aids are recyclable and should always be recycled.

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

Please make sure that the packaging contains the DSK (Device Specific Key) card. This card shows the DSK of your ABUS Z-Wave device. Please keep them in a safe place. Each S2 (Security 2) certified Z-Wave Gateway requires the DSK to learn the device.

Installation location Operating environment

Do not place heavy objects on the device. The device is only designed for use in rooms with appropriate temperature or humidity (e.g. bathroom) or with excessive dust. For a precise specification, check the technical data of the individual devices. Ensure that there is always adequate ventilation, no direct heat sources on the device, no direct sunlight or strong artificial light hitting indoor devices, the device is not in the immediate vicinity of magnetic fields (e.g. loudspeakers), no open fire sources (e.g. (e.g. burning candles), contact with splash and drip water on indoor equipment and aggressive liquids is avoided, the equipment is not operated in the vicinity of water, in particular the equipment must never be immersed (do not place objects filled with liquids, e.g. vases or beverages, on or next to the equipment), no foreign objects may penetrate, the equipment is not exposed to strong temperature fluctuations, as otherwise humidity may condense and lead to electrical short circuits, the equipment is not exposed to excessive shocks and vibrations.

Children

Do not allow electrical appliances to fall into the hands of children! Never allow children to use electrical equipment unattended. Children are not always able to recognize possible dangers correctly. Small parts can be life-threatening if swallowed. Keep packaging films away from children. There is a danger of suffocation! This device should not be handled by children. If used improperly, springy parts can jump out and cause injuries (e.g. eyes) to children.

Notes on disposal of the device

Attention: The EU Directive 2012/19/EU regulates the proper take-back, treatment and recycling of used electronic equipment. This symbol indicates 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 and commercial waste. The old appliance can be disposed of at the appropriate official collection points in your country. Follow local regulations when disposing of materials. For more details about the take-back (also for non-EU countries), contact your local administration. Separate collection and recycling saves natural resources and ensures that the recycling of the product complies with all health and environmental regulations.

English

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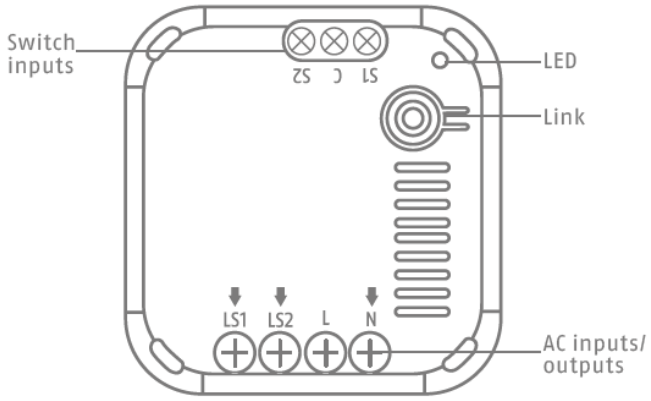
1. Product Introduction

1.1. Scope of delivery

- ABUS Z-Wave 230V relay module
- Quick guide & safety instructions
- DSK card

1.2. Device Features



1.3. Operating Principle

The PLHA10000 is designed for use in alarm and home automation systems using the Z-Wave radio standard. The device has the following functions:

- two inputs S1 and S2 for connection to wall switches.
- two independent switching outputs LS1 and LS2 for controlling lighting or other 230V actuators.
- Up to 4.3A/1,000W output are supported at 230V per switching output.
- The switching outputs can be switched independently of each other directly via the two switching inputs (connection to the existing push-button), or directly via radio from a Z-Wave gateway.
- If one of the two outputs is switched on, the LED lights up.
- The last status of the switching output before a power failure can be remembered and is automatically switched back to this status after the power supply has been restored.

1.4. performance characteristics

The device...:

- ...is Z-Wave PLUS compatible & certified
- ...supports the Z-Wave S2 standard (Security 2)

1.5. Use in systems of different manufacturers

Communication takes place via the Z-Wave EU frequency (868.4 Mhz). You can integrate the device into any Z-Wave network with a certified Z-Wave gateway, regardless of the manufacturer. All non-battery nodes in the network act as amplifiers to amplify the radio communication of the network.

1.6. DSK Code

The DSK Code (Device-Specific-Key) is the device-specific key of your device and is required for secure teach-in (including) via S2 at the gateway. The first 5 digits of the DSK code can be found on the QR code label on top of the product. Please enter these in the inclusion process when prompted. Alternatively, you can transfer the entire DSK code found on the enclosed DSK card to the gateway via QR code scan. Please keep the DSK card in a safe place!

Hint:

We recommend secure S2 inclusion (must be supported by the gateway) Please enter the 5 digits of the DSK code (bottom side of the device) or the entire DSK code (QR code) when prompted.

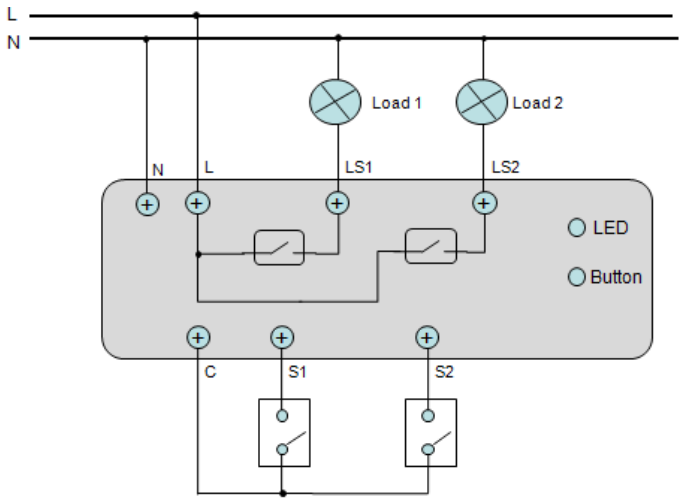
2. Functional Overview

2.1. Planning, assembly and installation

The unit uses low-power radio signals to communicate with the Z-Wave Gateway. To achieve the best results, please note the following:

- The device has a radio range of up to 40 m.
- Due to its design, the device is only suitable for flush mounting.
- In case of problems with the radio range, the antenna should be led out of the flush-mounted box.

The wiring is carried out according to the following diagram:

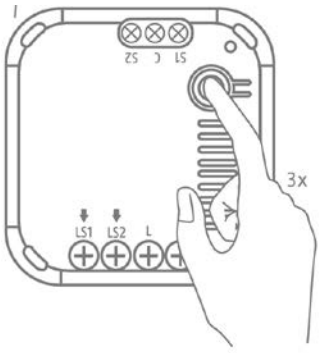


Please observe the safety instructions:

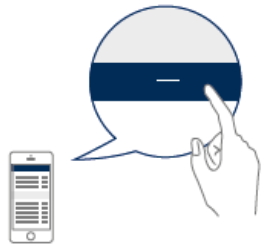
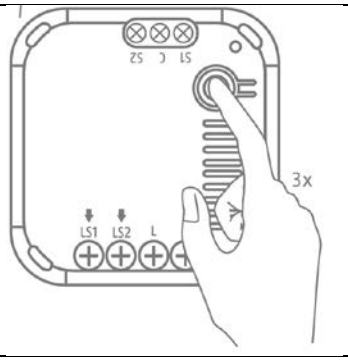
	The installation of the device is a work on the mains voltage. It must therefore be carried out by a specialist in accordance with local installation regulations and connection conditions. Make sure that the circuit is protected by a 16-amp circuit breaker or a suitable equivalent fuse. If you are not yet familiar with the installation and operation of the device, for your own safety, be sure to read the complete instruction manual first. During installation, the electrical cable to be connected must be voltage-free. Therefore, the first thing to do at the fuse box is to switch off the current and check that there is no voltage with a voltage tester.

After the wiring is completed, the power can be switched on again.

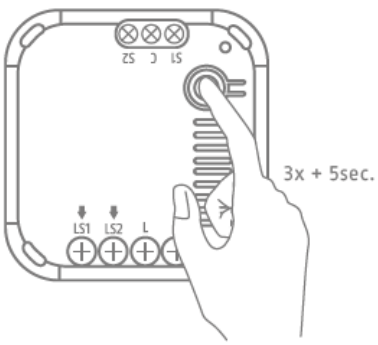
2.2. Inclusion (Inclusion) / Teach-in device

	Activate the inclusion mode (teach-in mode) on the gateway. (for further details please refer to the gateways manual) Press the "+" key (Add / Inclusion) in your Z-Wave app and follow the instructions to set the gateway to Inclusion mode.
	The unit supports SmartStart function, where inclusion is initiated automatically on power-on, and repeated at dynamic intervals for as long as the device is not included into a Z-Wave network. Z-Wave SmartStart is based on the embedded SDK 6.8x and requires related gateway software components. The LED starts flashing. Alternative Inclusion: If the automatic inclusion did not work, instead press the Link button 3 times quickly (within 1.5 seconds) to start the inclusion on the device.
	The successful inclusion is displayed in the app or on the gateway and the status LED on the device no longer flashes. Repeat the inclusion process if it was unsuccessful. If another attempt fails, first perform a factory reset on the device, see 2.4.

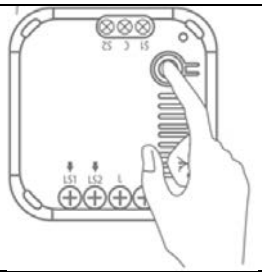
2.3. Exclusion (Exclusion) / Teach device out

	Activate the exclusion mode (learn-out mode) at the gateway. (for further details please refer to the gateways manual) Press the "**-**" key (Remove / Exclusion) in your Z-Wave app and follow the instructions to set the gateway to exclusion mode.
	Press the Link button 3 times quickly (within 1.5 seconds) to start the exclusion on the device.
	The successful exclusion is displayed in the app or at the gateway.

2.4. Reset (factory reset) / reset factory settings

	Press the Link button 3 times quickly (within 1.5 seconds). Press quickly (within 1 second) a fourth time and press and hold the Link button for at least 5 seconds. The button is now reset to factory settings. **Hint:** Please use this procedure only when the network primary controller is missing or otherwise inoperable. 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. Wake up device / Wake-up

	Press the Link button once to wake up the device. It then establishes a connection to the Z-Wave gateway and transmits the current status.

3. Advanced Z-Wave Parameters

3.1. Association Groups

Z-Wave devices can control other devices directly. This direct control is called Z-Wave Association. 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 three association groups:

group number	Maximum appliances	profile	command class	Group Name
Group 1	5	general	Notification Report Device Reset Locally Notification Switch Binary Report	lifeline
Group 2	5	control	Basic Set	On/Off control (key 1)
Group 3	5	control	Basic Set	On/Off control (key 2)

Group 1 (the Z-Wave Gateway)

- When the device is powered for the first time, the device sends a notification report to the node of group 1.
- When a factory reset is performed, the device sends a Reset Locally Notification to the node of group 1.
- When a relay output is activated by the switch, the device sends a binary switch report to the node of group 1.

Group 2 (direct association with up to 5 terminals - instead of group 1)

- When key 1 is pressed, the device sends a BASIC SET command containing a value to the nodes of group 2.

  (If the relay output is off, the Basic Set is value=0x00, if the relay output is on, the Basic Set is value=0xFF)

Group 3 (direct association with up to 5 terminals - instead of group 1)

- When key 2 is pressed, the device sends a BASIC SET command containing a value to the nodes of group 3.

  (If the relay output is off, the Basic Set is value=0x00, if the relay output is on, the Basic Set is value=0xFF)

Notification Report

Event	type	attribute	Event Parameter Length	Event Parameters
Device is supplied with power for the first time	0x08	0x01	0x00	

Basic Commands

command	Description of the
Basic Get	Inquiry of the device status
Basic Report	Device condition report
Basic Set	Switch device status (Value=0XFF →On, Value 0x00 Off)→

3.2. Overview configuration parameters

Z-Wave products can be used directly after inclusion in the network. Configuration settings, however, can be used to adapt the device's behavior even better to the requirements of the application and to activate additional functions.

para-meter	function	byte size	range	default value	Description of the
1	Key 1 Type	1	0-1	0	0: Momentary button 1: Switch (Toggle)
2	Key 2 Type	1	0-1	0	0: Momentary button 1: Switch (Toggle)
3	Relay 1 Auto Off Time	4	0-43200 sec	0	0: No Auto Off
4	Relay 2 Auto Off Time	4	0-43200 sec	0	0: No Auto Off
5	Remember relay 1 last state	1	0-1	1	0: do not remember 1: remember
6	Remember relay 2 last state	1	0-1	1	0: do not remember 1: remember

3.3. Overview of Supported Command Classes

1. COMMAND_CLASS_ZWAVEPLUS_INFO_V2
2. COMMAND_CLASS_ASSOCIATION_V2
3. COMMAND_CLASS_ASSOCIATION_GRP_INFO
4. COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V2
5. COMMAND_CLASS_MULTI_CHANNEL
6. COMMAND_CLASS_TRANSPORT_SERVICE_V2
7. COMMAND_CLASS_VERSION_V2
8. COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2
9. COMMAND_CLASS_DEVICE_RESET_LOCALLY
10. COMMAND_CLASS_POWERLEVEL
11. COMMAND_CLASS_SECURITY
12. COMMAND_CLASS_SECURITY_2
13. COMMAND_CLASS_SUPERVISION
14. COMMAND_CLASS_FIRMWARE_UPDATE_MD_V4
15. COMMAND_CLASS_NOTIFICATION_V4
16. COMMAND_CLASS_CONFIGURATION
17. COMMAND_CLASS_SWITCH_BINARY

4. Technical data

parameter	PLHA10000
Dimensions (W x H x D)	43 x 42 x 16.5 mm
Weight	33 g
Operating temperature	>0° – 40°C
IP class	IP 20 (indoor)
Radio frequency	868.42 MHz (Z-Wave PLUS, Europe)
Modulation	FSK (BFSK/GFSK)
Transmission power:	< 5 dbm
Power supply	230 V AC / 50 Hz
Maximum load	2 x 1.000W/4.3A
Standby Power consumption	8.9mA
Firmware updateable	Yes, OTA
Z-Wave Manufacturer ID	0x0403
Z-Wave Product Type ID	0x0003
Z-Wave Device ID	0x0005
Z-Wave Beaming supported	Yes
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 Repeater Function	Yes
Z-Wave Chip Generation	500
Z-Wave Hardware Platform	SD3502
Z-Wave Library Type	Enhanced 232 Slave
Z-Wave Device Type	On/Off Power Switch
Z-Wave Role Type	Always On Slave
Z-Wave DevKit Version	6.81.03