



# **Remote control keys**

## **ZKey**

# **User Manual**

Révision 2.0

Document : UM\_ZKEY\_20150330\_001\_01\_00

## WARRANTY

The device supplied to the buyer and/or the recipient is guaranteed by CLEODE against any malfunctions originating from a design and/or manufacturing flaw, for a period of twelve (12) months following delivery. The buyer and/or recipient is (are) responsible for proving the existence of the said defects or flaws. This warranty is applicable in accordance with articles 1641 to 1648 of the French Civil Code and in compliance with the French statutory warranty. The warranty covers the replacement free of charge of devices and parts affected by a design and/or manufacturing flaw excluding conspicuous defects in the device that are covered by the buyer and/or the recipient.

In order to invoke the warranty, the buyer must immediately send written notice to CLEODE of the flaws that it attributes to the device. It must enable CLEODE to have access to the device to observe these defects and repair them. The warranty provided by CLEODE is strictly limited to the equipment provided and shall only have for effect the replacement or repair, at CLEODE's expense, on its own premises, of all devices or parts that are not functioning as a result of defects or flaws. CLEODE reserves the right to modify the devices in order to comply with the warranty.

The warranty does not apply to replacement or repairs that may result from normal wear and tear of devices, systems or products, damage or accidents resulting from negligence, failure to supervise or maintain, or incorrect use of the devices, systems and/or products.

The maintenance service is provided by CLEODE with all reasonable care possible and in compliance with the current state of the arts.

The exchange of parts or repairs performed under the warranty cannot result in extending the length of the warranty. In no event can the unavailability of the device due to servicing give rise to compensation for any reason whatsoever. The seller is released from all obligations relating to the warranty if the product or device has been modified without prior written consent, or if original parts have been replaced by parts which it has not manufactured without prior consent. If unforeseen damage is caused by the device, it is expressly agreed that the seller can only be liable for the reimbursement of monies received for the purchase of the device if it has been destroyed. Under no circumstances can the seller be held liable for indirect or contingent damage. The seller is released from any liability and the buyer waives any rights against it if an accident or direct or indirect damage is caused to the buyer following a defect, incorrect usage, incorrect maintenance or normal wear of the device sold.

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## 2 GLOSSARY

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<b>ZigBee®</b>	Standard frequency radio communication protocol (ZigBee Alliance)
<b>FAQ</b>	Frequently Asked Questions

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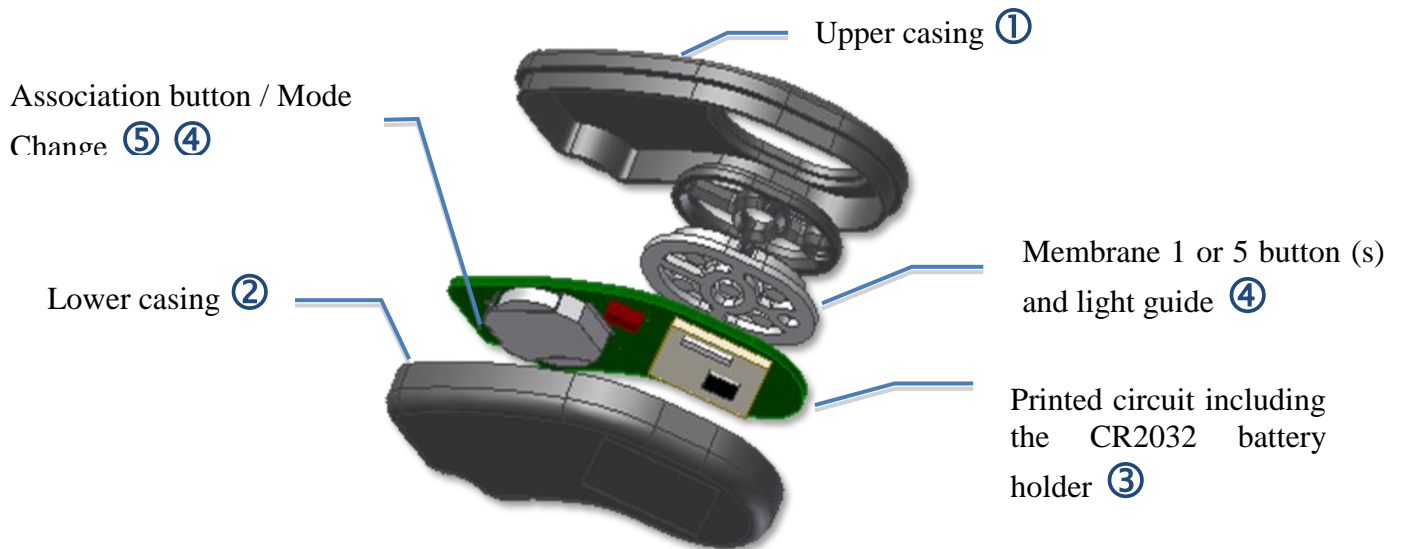
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Version	Author(s)	Version description	Date
0.1	CLEODE	Initiale version	01/03/2015
1.0	CLEODE	Approval user manual	30/03/2015

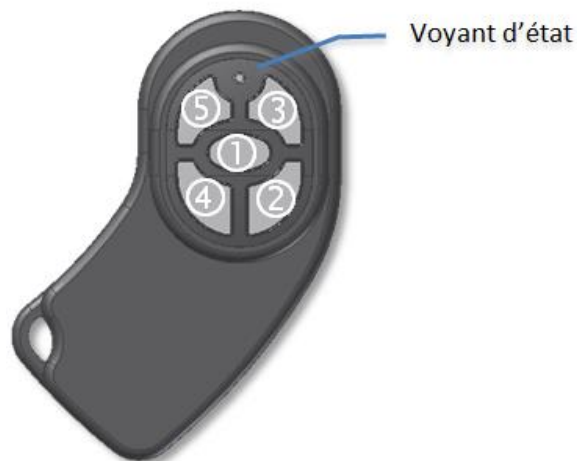
## I PRESENTATION

The ZKey product is a remote control ZigBee® as keychain to control ZigBee® equipments. It manages the scenes and groups with one or five command buttons and an association and mode change button.

The following figure shows an exploded view of the product:



**Figure 1 : Overview**



**Figure 2 : Dialing of push buttons**

## I.1 FUNCTIONAL FEATURES

The ZKey product has the following main features:

1. Integration into a ZigBee® network
  - a. Search a coordinator
  - b. Management and backup network settings for total mobility within the network
  - c. Reset
  - d. Mode of identification through a red light according to specifications ZigBee®
2. A configuration mode allows the user to set different scenarios for each button.
3. A standard operating mode where each button press triggered a scenario.



The ZKey product is mobile in the ZigBee® network, it is compatible with all standard ZigBee routers integrating ZigBee® Pro 2007.

In order to have perfect coverage of ZigBee® network, it is recommended to have multiple router type ZigBee® products. A good network transmits data without loss of information.

## I.2 TECHNICAL FEATURES

Weight	23g (CR2032 battery included)
Dimensions (LxIxH)	60x40x17mm
Supply	1 battery CR2032
Autonomy	>12 month with a battery 235mAh
Range ZigBee®	100 m in open field, 10 m inside (*)
16 managed channels (frequency)	All channels ZigBee®



(\*) These data may vary according to the use environment .

## II 'QUICK START'

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- 1) **Turn the ZKey product ON** (for more details, see chapter III.1)
- 2) **Pairing the ZKey product** (for more details, see chapter III.2).
- 3) **Software configuration of the ZKey product** (for more details, see chapter V).
- 4) **To analyze the data reported by the ZKey product** (for more details, see chapter **Erreur ! Source du renvoi introuvable.**).
- 5) **ZKey product has not the desired behavior, what to do?** (for more details, see chapter VII).



## III PROCEDURES

### III.1 TURN ON THE ZKEY PRODUCT

To put the ZKey product on or to change the battery, do the following as shown in the figure below:



**Figure 3 : procedure for a battery change**

- 1) Put the ZKey product buttons to the ground ①
- 2) Separating the two casings ②.
- 3) Proceed with placement of the battery by sliding it into the battery holder (for a replacement, remove the old battery beforehand) ③. At this time, the light status flashes red twice.
- 4) Close the box by clipping the two casings ④.



In case of power failure:

- 1) Check the battery and replace it if necessary
- 2) Contact the technical support of CLEODE if needed

### III.2 PAIRING ZKEY PRODUCT

Several scenarios are to be seen:

- 1) Pairing ZKey product for the first time
- 2) Reset Product to pair with a new network
- 3) Network Research in case of failure of association
- 4) The return of the ZKey product in the network during a battery change

### III.2.1 PAIRING FOR THE FIRST TIME

To associate the ZKEY product in a ZigBee® network for the first time, perform pairing as follows:

- 1) Allow adding a ZigBee® object in your network (see the manual of your coordinator).
- 2) Put in setup mode the ZKEY product by briefly pressing the button next to the battery: the light status flashes orange 5 times.
- 3) The ZKEY product scans the network for 20 seconds. When the pairing is finished, the light status goes red for 2 seconds.
- 4) The ZKEY product is operational and is seen on the network.

### III.2.2 RESET AND PARING IN ANOTHER NETWORK

To make a reset ZKEY product and pairing in another ZigBee network, do a pairing as the following:

- 1) Allow adding a ZigBee® object in your network (see the manual of your coordinator)
- 2) To force ZKEY product integration in an another network, press the button next to the battery for at least 5 seconds: the light status blinks red 2 seconds and goes out.
- 3) Put in setup mode the ZKEY product by briefly pressing the button next to the battery: the light status flashes orange 5 times.
- 4) The ZKEY product scans the network for 20 seconds. When the pairing is finished, the light status goes red for 2 seconds.
- 5) The ZKey product is operational and is seen on the network.



If the ZKey product isn't visible in the network, the association has failed and you must do a new network search (see section III.2.3).

### III.2.3 NETWORK RESEARCH

To perform a ZigBee® network research, to pair as following:

- 1) Allow adding a ZigBee® object in your network (see the manual of your coordinator).
- 2) Put in setup mode the ZKey product by briefly pressing the button next to the battery: the light status flashes orange 5 times.
- 3) To do a network research, press the button next to the battery for at least 3 seconds: the light status blinks red 20 seconds and goes out.
- 4) The ZKey product scans the network for 20 seconds. When the pairing is finished, the light status goes red for 2 seconds.
- 5) The ZKey product is operational and is seen on the network.



If the ZKey product isn't visible, the association has failed and you must restart the process..

### III.2.4 ZKEY PRODUCT RETURN IN THE NETWORK ON BATTERY CHANGE

To force the return of the ZKey product after a battery change in the network, to pair as following:

- 1) Put in setup mode the ZKey product by briefly pressing the button next to the battery: the light status flashes orange 5 times.
- 2) To do a network research, press the button next to the battery for at least 3 seconds: the light status blinks red 20 seconds and goes out.
- 3) The ZKey product scans the network for 20 seconds. When the pairing is finished, the light status goes red for 2 seconds.
- 4) The ZKey product is operational and is seen on the network.



If ZKey product isn't visible, the association has failed and you must do a new search (see section III.2.3)

### III.3 SWITCHING IN STANDARD MODE OR SETUP MODE

The ZKEY product has 2 operating modes: setup mode and standard mode.

The procedure to switch from standard mode to setup mode or vice versa is as follows:

- 1) Briefly press the button next to the battery.
- 2) Depending on the case, the status light flashes different colors 5 times.
  - a. For a standard mode switching to setup mode: 5 orange flashes
  - b. For a standard mode to setup mode switching: 5 green flashes



This action is available to the user when he wants to change the product settings.

Indeed, in standard mode, the ZKEY product is unreachable, so it cannot be configured by software.

The setup mode is active only for 10 minutes.. After this time out, the ZKEY product switches to standard mode to best manage the lifetime of the battery.

In setup mode, pressing the keys produces no visual change in the status indicator



The setup mode is consumer of energy. It is advisable to use it only for the setup of scenes and groups assigned to different buttons and the integration in a ZigBee® network.

The settings are always saved. A battery change does not affect the settings.



In setup mode, pressing the keys produces no visual change in the status indicator.

This mode is exclusively dedicated to the setup via a ZigBee network management software as CleoBee® or an another.

## IV SOFTWARE INTERFACE

### IV.1 PRESENTATION

The ZKey product is compatible with the standard ZigBee® Pro 2007. It is compliant at the Home Automation profile defined by the ZigBee Alliance®.

### IV.2 ZKEY APPLICATION

#### IV.2.1 APPLICATION DESCRIPTION

The application is structured around 5 EndPoints (one per button). Each EndPoint contains the following clusters:

Server	Customer
Basic (0x00)	/
Identify (0x03)	/
/	Scenes (0x05)
Alarms <sup>1</sup> (0x09)	/
Power Configuration <sup>1</sup> (0x01)	/
Multistate Output Basic (0x0013)	/
Multistate Value Basic (0x0014)	/

The EndPoint are identified from 0x01 to 0x05.

#### IV.2.2 CLUSTERS DESCRIPTION

This is a terse description of clusters and attributes which are implemented in the ZKey product.

##### IV.2.2.1. BASIC CLUSTER

This cluster is used to determine basic information about the device as name of manufacturer, model of the object, etc...

Attribute	Attribute ID
ZCLVersion	0x0000
ApplicationVersion	0x0001
StackVersion	0x0002
HWVersion	0x0003
ManufacturerName	0x0004
ModelIdentifier	0x0005
DateCode	0x0006
PowerSource	0x0007
LocationDescription	0x0010
PhysicalEnvironment	0x0011
DeviceEnabled	0x0012
AlarmMask	0x0013

#### IV.2.2.2. IDENTIFY CLUSTER

This cluster is used to put a device into an Identification mode. By writing the *IdentifyTime* attribute value, the user asks the device to blink the light, during a number of seconds specified by this value.

Attribute	Attribute ID
<b>IdentifyTime</b>	0x0000

#### IV.2.2.3. ALARMS CLUSTER

This cluster is used to signal an alarm. Only the low battery power level is processed. If the voltage level of the battery is too low, the AlarmCount attribute is incremented and an alarm message is sent to the network on the object with a binding on this cluster.

Attribute	Attribute ID
<b>AlarmCount</b>	0x0000

#### IV.2.2.4. POWERCONFIGURATION CLUSTER

This cluster is used to specify the battery voltage threshold monitoring.

Attribute	Attribute ID
<b>BatteryAlarmMask</b>	0x0035
<b>BatteryVoltageMinThreshold</b>	0x0036

#### IV.2.2.5. SCENE CLUSTER

This cluster has no attributes.

#### IV.2.2.6. MULTISTATE OUTPUT (BASIC) CLUSTER

This cluster contains information and settings to identify the group on which the command "Recall scene"» is applied.

Attribute	Attribute ID	R/W	Type	Description
<b>Description</b>	0x001C	R	Char String	The description of the attribute
<b>NumberOfStates</b>	0x004A	R	Unsigned 16-bit integer	The number of possible states. Factory Value: 0xfff7
<b>OutOfService</b>	0x0051	RW	Boolean	Factory Value: false
<b>PresentValue</b>	0x0055	RW	Unsigned 16-bit integer	Represents the group identifier on which the command is applied. Factory Value: button number 0x01 to 0x05
<b>StatusFlags</b>	0x006F	R	Enum8	Factory Value 0x00

#### IV.2.2.7. MULTISATE VALUE (BASIC) CLUSTER

This cluster contains information and settings to identify the scene on which the command "Recall scene"» is applied.

Attribut	Identifiant de l'attribut	R/W	Type	Description
Description	0x001C	R	Char String	The description of the attribute
NumberOfStates	0x004A	R	Unsigned 8-bit integer	The number of possible states. Factory Value: 0xffff7
OutOfService	0x0051	RW	Boolean	Factory Value: false
PresentValue	0x0055	RW	Unsigned 16-bit integer	Represents the group identifier on which the command is applied. Factory Value: button number 0x01 to 0x05
StatusFlags	0x006F	R	Enum8	Factory Value 0x00

## V SOFTWARE CONFIGURATION

The five ZKey buttons are fully customizable. A button configuration consists of:

- 1) identification of the group on which the command will be applied
- 2) identification of the scene on which the command will be applied



Before any software configuration, you must manually switch the ZKey in setup mode (see section III.4)

To configure each button (from 0x01 to 0x05 EndPoint), the attributes "PresentValue" of the clusters "Multistate base value" and "Multistate basic Ouput" must be completed (see IV 2.2).

Thus, to apply the scene 8 on all objects in the group 4 with the button 1, the attributes PresentValue of the clusters will be configured as below::

- Cluster MultiSate Output (Basic)/PresentValue → 0x04
- Cluster MultiSate Value (Basic)/PresentValue → 0x08



The changes will be considered only upon return to standard mode.

## VI DATA SENT BY ZKEY PRODUCT

In standard mode, only commands "Recall Scene" are sent in broadcast mode on the ZigBee® network when the user pushes a button.

## VII TIPS & REPAIR

You can quickly solve most of the problems of the ZKey product by following the advice in this chapter.

### VII.1 SOME SUGGESTIONS

You can solve most problems by resetting the ZKey product.



Make sure first that the voltage supplied by the battery in your Zkey product is correct.

Otherwise replace the battery (see paragraph III.1).

#### **To reset the ZKey:**

- 1) To reset the Zkey product, press the button next to the battery for at least 5 seconds: the light status blinks red 2 seconds and goes out.
- 2) Put in setup mode the ZKEY product by briefly pressing the button next to the battery: the light status flashes orange 5 times.
- 3) The Zkey product scans the network for 20 seconds. When the pairing is finished, the light status goes red for 2 seconds.

#### **If the red light does not light up:**

- Check your battery

#### **If the pairing fails:**

- Check that your network has a coordinator
- Check that your coordinator is compliant with Home Automation profile and working on a secure public profile
- Check that you are still within radio range of a router or coordinator

#### **If your product ZKey is not available on the network ZigBee® :**

- Switch the product in configuration mode
- Or check the battery

### VII.2 THE PRODUCT ZKEY DOESN'T WORK CORRECTLY

During a typical use of the ZKey product, you find that pressing a button does not control the good elements:

- Check in setup mode that the settings for each button are corrects.
- Check that the objects are available on the network. If necessary, add routers to extend your network coverage.



The objects to manage must always contain clusters group and scene for a good interpretation of the commands "Recall scene".

## 4 REPAIR AND MAINTENANCE

Defective hardware will be returned to CLEODE accompanied by:

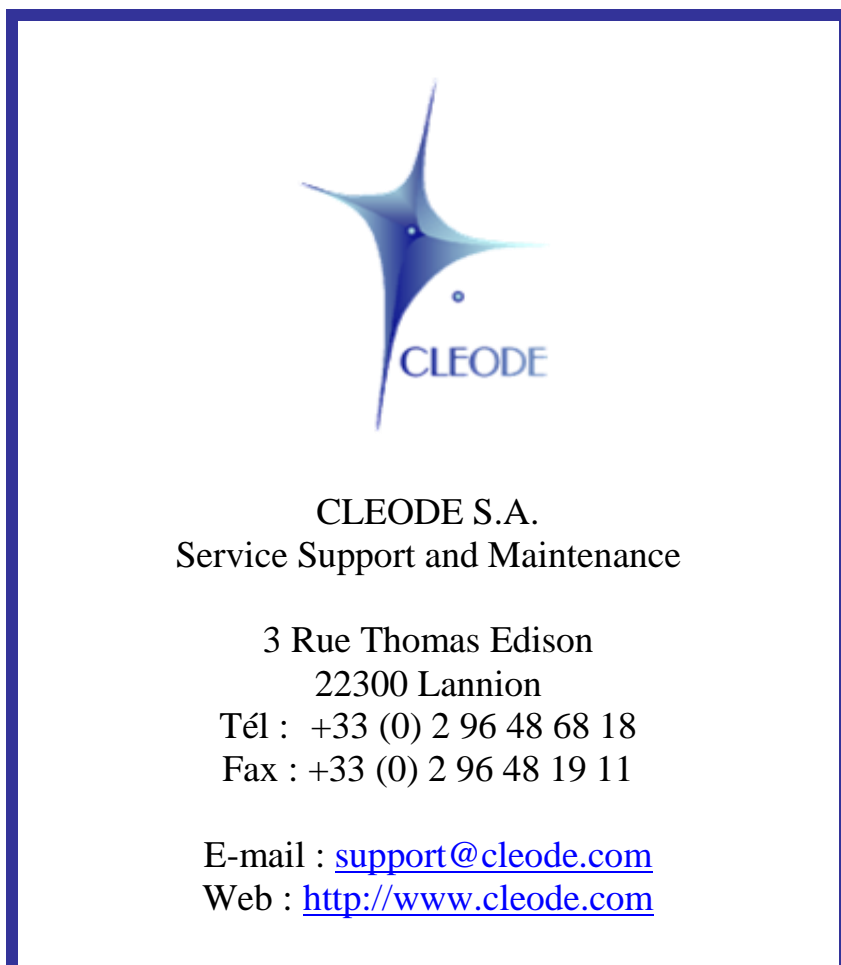
- A copy of the delivery,
- A description of the observed dysfunction and context of its appearance.

The maintenance period is four (4) weeks from the back to the factory. Repair is provided by the manufacturers of the hardware not void the warranty of the item.

The informations on the label may be requested by CLEODE to identify your hardware. These informations are ::

- The model,
- The year of production,
- The reference and revision,
- The serial number.

Any support request should be sent to the following address or by email to [support@cleode.com](mailto:support@cleode.com):



**End of the User Manual**