La nouvelle génération de contrôleurs communicants

CLEODE

ZigBee™ water leak detector ZLEAK

User Manual

Revision: 1.0
Document: UM_ZLEAK_20111017_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to the warranty if the product or device has been modified without prior written consent, or if original parts have been replaced by parts which it has not manufactured without prior consent.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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TABLE OF REVISIONS

| Version	Authors(s)	Version description	Date
0.1	CLEODE	Initial version	18/10/2011
1.0	CLEODE	Validated document	26/10/2011

REFERENCE DOCUMENTS

N°	Document	Description
[1]	ZigBee_Cluster_Library_Public	Spécification de la Zigbee Cluster Library
[2]	ZigBee_Home_Automation_Profile	Spécification du profile Home Automation
[3]	ZigBee_Specification	Spécification de la norme ZigBee

I INTRODUCTION

I.1 ZIGBEE WATER LEAK DETECTOR PRESENTATION

The water leak detector allows to implement quickly applications of surveillance type, using the ZigBee™ technology. It can detect a water leak.

The ZLEAK has this form:

Association light and button   Probe
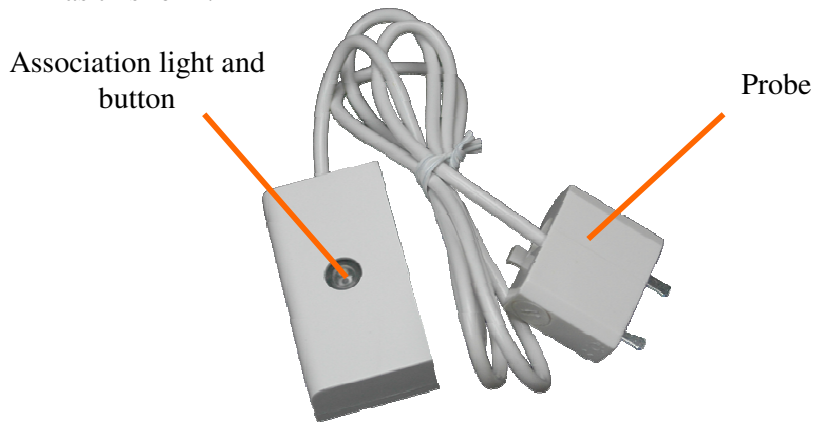
	The ZLEAK module Zigbee ™ works in conjunction with a Zigbee coordinator ™ compatible stack pro 2007.
	CLEODE also markets Coordinators Zigbee™.
	Contact : support@cleode.com ou Web : www.cleode.fr for more information

I.2 COPYRIGHT

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II WATER LEAK DETECTOR DESCRIPTION

II.1 ZIGBEE PRESENTATION

The ZigBee™ water leak detector is based on the *IASZone* application defined in the ZigBee™ Home Automation profile. It also integrates a cluster ON/OFF allowing sending ON commands or OFF commands to an object also containing this cluster.

This node is fully compliant with the ZigBee™ PRO 2007 and Home Automation profile. For more detail on the data exchange between device and network, see documents [1], [2] and [3].

II.2 WATER LEAK DETECTOR APPLICATION

The detection of water leak is made through a sensor who in presence or in absence of water emits the corresponding alarm. This application is a part of the profile Home Automation.

In every detection of water, the ZLEAK will send an ON command to the objects which have a link with the ZLEAK on the cluster ON/OFF. The OFF command will be sent at the end of detection of water leakage.

II.2.1 WATER LEAK DETECTOR APPLICATION DESCRIPTION

- Device ID : IAS Zone
- Endpoint number: 1
- Clusters :

Server	Cleint
Basic (0x00)	On/Off (0x06)
Power_Configuration (0x01)	/
Identify (0x03)	/
Alarms (0x09)	/
IAS Zone (0x500)	/

II.2.2 CLUSTERS DESCRIPTION

This is a terse description of clusters and attributes which are implemented in the ZLEAK. For more detail on these, see document [1].

▪ Basic cluster :

This cluster is used to determine basic information about the device.

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

▪ Cluster Power Configuration :

This cluster is used to specify the min threshold of battery level by setting the *BatteryVoltageMinThreshold* attribute value.

Attribute	Attribute ID
BatteryAlarmMask	0x0035
BatteryVoltageMinThreshold	0x0036

▪ Identify cluster :

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

Attribute	Attribute ID
IdentifyTime	0x0000

▪ Alarms cluster:

This cluster is used to signal an alarm. In the case of ZLEAK, only the low battery power level is processed. If the battery power level is too low (under 2,4V) the *AlarmCount* value changes to 1 and a command message is send to coordinator.

Attribute	Attribute ID
AlarmCount	0x0000

■ IASZone:

This cluster is used to signal, by the value of ZoneStatus attribute, if ZLEAK has detected the presence of water. On detection and at the end of detection a ZoneStatusChangeNotification command, is send to signal the new value of ZoneStatus.

Attribute	Attribute ID
ZoneState	0x0000
ZoneType	0x0001
ZoneStatus	0x0002
IAS_CIE_Address	0x0010

The Zone Type dictates the meaning of Alarm1 bits of the ZoneStatus attribute. In the case of ZLEAK, the ZoneType value is 0x002A, meaning that the ZLEAK manages a water sensor.

The *ZoneStatus* attribute is a bitmap attribute. The description of each bit is described in the following table:

| Bit	Description	Value	Implemented
0	Water Alarm	1 – Water detection 0 – No water detection	Yes
1	-	-	-
2	Tamper	1 – Tampered 0 – Not tampered	No
3	Battery	1 – Low battery 0 – Battery OK	No
4	Supervision reports	1 – Reports 0 – Does not report	No
5	Restore reports	1 – Reports restore 0 – Does not report restore	Yes
6	Trouble	1 – Trouble/Failure 0 – OK	No
7	AC (mains)	1 – AC/Mains fault 0 – AC/Mains OK	No
8-15	Reserved	-	-

Only the bit 0 changes. Then, attribute can take these values:

Value	Description
0x0020	No alarm
0x0021	Water leak detection alarm

III INSTALLATION AND NETWORK ASSOCIATION

III.1 INSTALLATION

The ZLEAK must be situated shielded from the projections of water. Both metallic pins of the sensor must be placed in touch with the zone to be watched as indicated on the plan below.
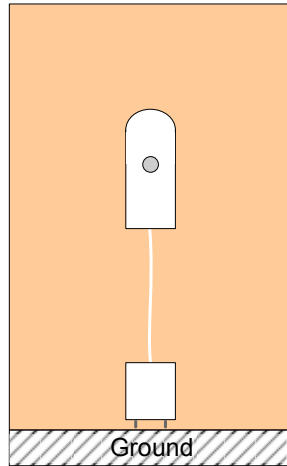
III.1.1 DOUBLE-SIDED TAPE INSTALLATION

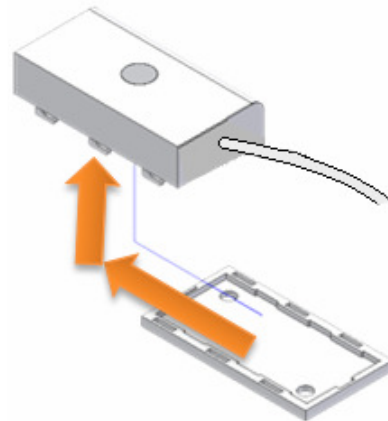To mount the ZLEAK with a double-sided tape, follow this:
1) Stick a double-sided tape on the ZLEAK bottom
2) Dust the wall
3) Mount the ZLEAK on the wall

Make the same operation with the sensor.

III.1.2 SCREW INSTALLATION

To fix the ZLEAK by means of the system of screw, follow the following procedure.

Remove the bottom of the case as indicated on the photo.

Locate the position of holes and drill the wall by taking into accounts your system of fixation (ankle + screw). Push ankles in the holes make previously. Position the support of the ZLEAK on the wall and screw saws them as on the photo.
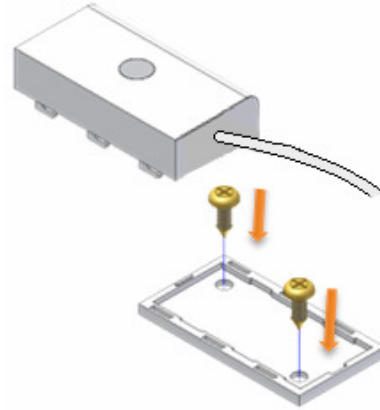
Go back up the ZLEAK on its support as indicated on the photo.
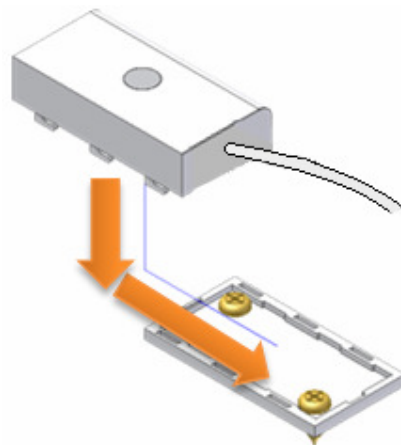
Proceed then to the installation of the sensor. With an adhesive, install the sensor on the zone to be watched.
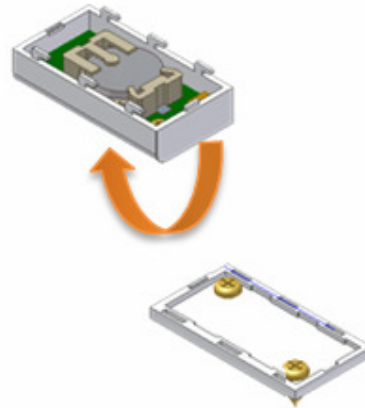
III.1.3   CHANGING BATTERIES

The ZLEAK is fed by a battery button (CR2032) situated in the support of battery in the back of the card. To change the battery, follow the following instructions.

Open the case as indicated on the photo.
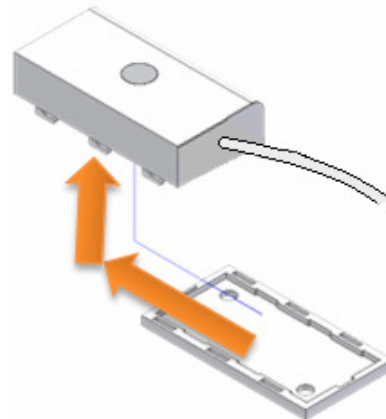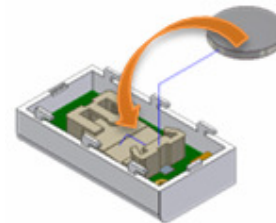
Turn the ZLEAK once opened.

Press on the central leg of the support of battery to remove the battery.
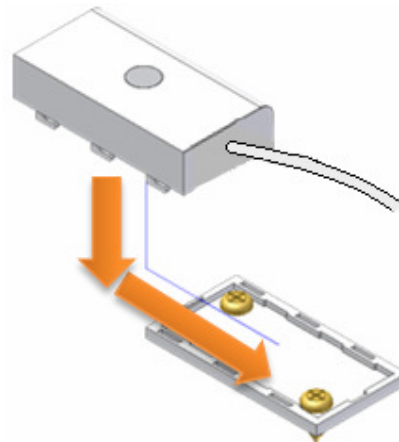
Push here
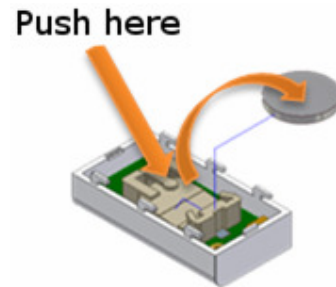
Position a new battery.

At this moment the ZLEAK restarts. If it was associated with a network before going out it is going to try to join this network. Otherwise, if it was never associated it is going to look for an available network.
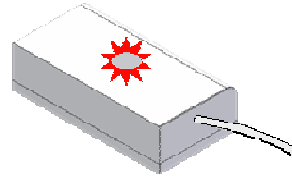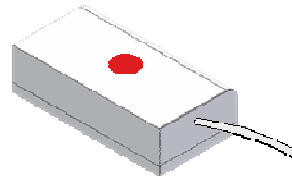
Close the case of the ZLEAK.

III.2 STARTING UP ZLEAK

In the switched on of the object, it tries to join during about seconds and flashes twice.

If a coordinator is present and what it authorizes the ZLEAK to join the network, the light of the ZLEAK flashing during 2 seconds then turn off.

In the cases where the association is not possible, the object is going to put itself in sleep and to try automatically to join at the end of 15 minutes. This time will increase twofold in every new failure of the association.
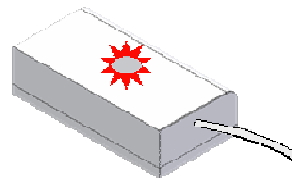
III.3 RESTART OF THE ASSOCIATION PHASE

If the ZLEAK is not associated, the user can ask him at any time to join a network.
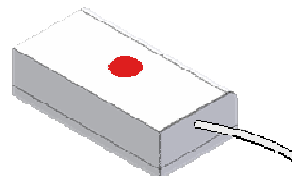
For this, the user has to press during 3 seconds on the button.
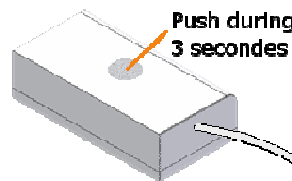
If the ZLEAK was not associated it begins flashing quickly during 20 seconds. The ZLEAK looks for a coordinator during this blinking.

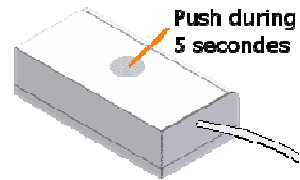If the association is success, the light of the ZLEAK flashing during 2 seconds and turn off.

If the light of the ZLEAK does not flash after pressing on the button during 3 seconds, this means that he is already associated in a network.
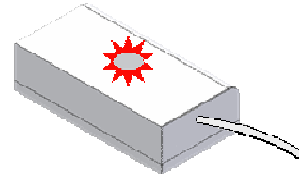
III.4 RESET

If need, the user can reset the ZLEAK.

For this, he has to press on the button during 5 seconds.

When the ZLEAK reset, the LED flashes twice and turn off.

IV TECHNICAL FEATURES

Weight	30 g (without battery and without probe)
Power Supply	1 CR2032 battery
Battery Life	> 1 year
Transmission range	100 m outdoor 30 m indoor
Managed channels (frequency)	16 ZigBee™ channels (2.405 to 2.480 GHz)

REPAIR AND MAINTENANCE

Defective equipments shall be first reported to the CLEODE support team in order to be assigned an RMA number. Be prepared to state your name, company and the serial number of the defective item to the support personnel.

The item shall then be returned to CLEODE with the following documents:
- The RMA number
- A copy of the delivery slip
- A detailed description of the default and the test context

The maintenance period is typically four (4) weeks starting from the date of reception of the equipment at the CLEODE headquarters.

CLEODE S.A.

Technical Support Division

8, rue Bourseul

22300 Lannion

France

Phone : +33 (0) 2 96 48 68 18

Fax : +33 (0) 2 96 48 19 11

E-mail : support@cleode.com

Web : http://www.cleode.com