CLEODE

Temperature and humidity ZigBee™ sensor ZHUM

User Manual

Revision: 1.0
Document : UM_ZHUM_20140422_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to the warranty if the product or device has been modified without prior written consent, or if original parts have been replaced by parts which it has not manufactured without prior consent.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.

SOMMAIRE

TABLE OF REVISIONS

Version	Authors(s)	Version description	Date
0.1	CLEODE	Initiale version	03/11/2014
1.0	CLEODE	Approbation	03/12/2014

REFERENCE DOCUMENTS

N°	Document	Description
[1]	ZigBee_Cluster_Library_Public	Specification of the Zigbee Cluster Library
[2]	ZigBee_Home_Automation_Profile	Specification of the Home Automation profile
[3]	ZigBee_Specification	Specification of the ZigBee standard

I INTRODUCTION

I.1 SENSOR PRESENTATION

The temperature and humidity sensor (ZHUM) measures the temperature of a room and the relative humidity level.

The ZHUM object is presented on the following form:

Light and button

	The ZHUM Zigbee™ module works in conjunction with a Zigbee coordinator ™ compatible stack pro 2007. CLEODE also markets Coordinators Zigbee™. Please contact : support@cleode.com ou Web : www.cleode.fr for more information

I.2 COPYRIGHT

The CLEODE trademark and the CLEODE logo are properties of CLEODE SA, France. This document also refers to trademarks and other product names that are registered trademarks of their respective owners.

II HUMIDITY AND TEMPERATURE SENSOR DESCRIPTION

II.1 ZIGBEE PRÉSENTATION

The ZHUM contains an application type Temperature sensor defined in the standard Home Automation (Cf. document [2]).

This ZigBee™ object is compliant with ZigBee PRO ™ 2007 and Home Automation profile standard. For more details on the data exchanged, please refer to the documents [1], [2] and [3].

II.2 APPLICATION

The temperature measurement is made by reporting a value of attribute in the *Temperature Measurement* cluster.

Humidity measurement is made by reporting a value of attribute in the *Relative Humidity*.cluster.

These clusters are part of the Home Automation profile.

II.2.1 HUMIDITY AND TEMPERATURE MEASUREMENT APPLICATION DESCRIPTION

- Device ID : Temperature sensor
- Endpoint : 1
- Clusters :

Server	Customers
Basic (0x00)	/
Power_Configuration (0x01)	/
Identify (0x03)	/
Alarms (0x09)	/
Temperature Measurement (0x402)	/
Humidity Measurement (0x405)	/

II.2.2 CLUSTERS DESCRIPTION

Here is a brief description of clusters and implemented in the ZHUM attributes. For more details on the operation thereof, please refer to document [1].

- Basic Cluster:

This cluster contains informations of version, 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

- Power Configuration Cluster:

This cluster is used to specify the level of low battery voltage by the value of the attribute *BatteryVoltageMinThreshold*.

Attribute	Attribute ID
BatteryVoltage	0x0020
BatteryAlarmMask	0x0035
BatteryVoltageMinThreshold	0x0036

The report of the Battery Voltage value is available to follow the change of Battery Voltage

- Identify Cluster:

This cluster is used to identify the object in the physical network. By writing the value of the attribute IdentifyTime seeing the object will flash during the time specified by this value.

Attribute	Attribute ID
IdentifyTime	0x0000

- Alarms Cluster:

This cluster is used to report an alarm. In the case of the ZHUM the only alarm treated concern the level of battery voltage. If the level is too low (<2.4 V) the AlarmCount attribute is set to 1 and an alarm message is sent.

Attribute	Attribute ID
AlarmCount	0x0000

- Temperature measurement cluster:

This cluster is used to configure the measurement of temperature, and reporting temperature measurements.

Attribute	Attribute ID
MeasuredValue	0x0000
MinMeasuredValue	0x0001
MaxMeasuredValue	0x0002
Tolerance	0x0003

Among the attributes of the cluster TemperatureMeasurement the attribute MeasuredValue transmits its value as follows:

- Every hour if the temperature does not change by more than 1 ° C
- After 2 minutes if the temperature has changed by more than 1 ° C

Configuration settings report (min time, max time, temperature change report) is fully configurable by the user.

MeasuredValue : temperature measured in °C * 100.

- Relative humidity measurement cluster:

This cluster is used to configure the measurement of humidity, and reporting humidity measurements.

Attribute	Attribute ID
MeasuredValue	0x0000
MinMeasuredValue	0x0001
MaxMeasuredValue	0x0002
Tolerance	0x0003

Among the attributes of the cluster Relative humidity measurement, the MeasuredValue attribute transmits its value follows:

- All hours if moisture does not move more than 1%
- After 2 minutes if the temperature has changed by more than 1%

Configuration settings report (min time, max time, temperature change report) is fully configurable by the user

MeasuredValue : humidity measured % * 100.

III INSTALLATION AND NETWORK ASSOCIATION

III.1 INSTALLATION

### III.1.1 FIXING THE CASE BY ADHESIVE

To fix the ZHUM with an adhesive, follow the procedure:
1. Stick double-sided tape on the back of the box
2. Remove any dust from the wall by vacuuming or wet cleaning
3. Once dry, remove the protection of the adhesive and secure the housing at the required location.

III.1.2 FIXING THE CASE BY SCREW

To fix the ZHUM using the screw system, follow the following procedure.

Detach the bottom of the case as shown in the picture.
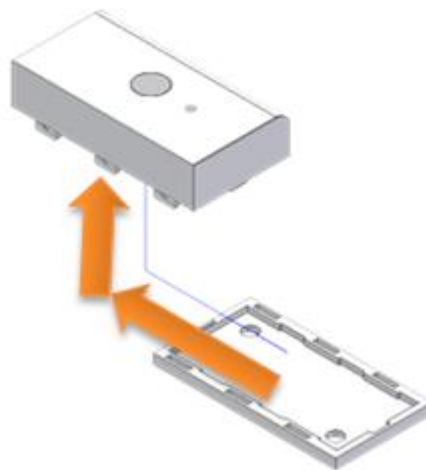
Mark the position of the holes and drill the wall taking into account your fixing system (ankle + screws). Insert the dowels into the holes previously drilled. Position the bracket to the ZHUM then tighten the screws as pictured.
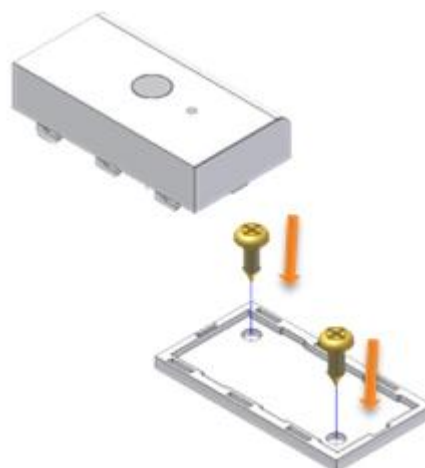
Refit the ZHUM on its support as shown in the picture.
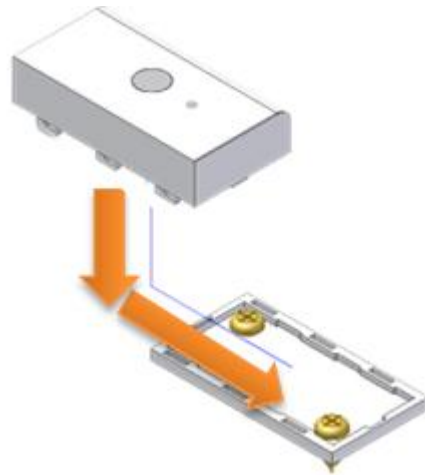
III.1.3 CHANGE BATTERIES

The ZHUM is powered by a button battery (CR2032) in the battery holder on the back of the card. To replace the battery, follow these instructions.

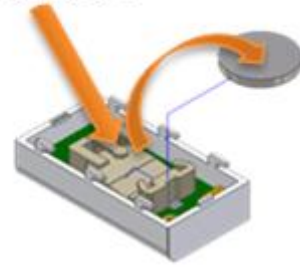Open the case as shown in the picture.
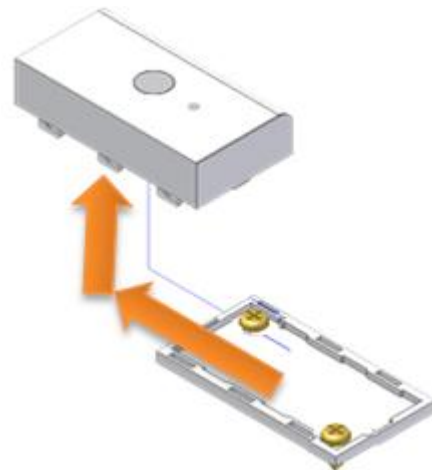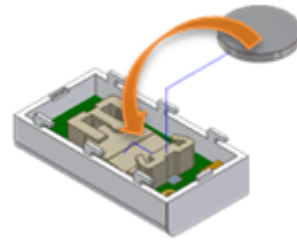
Turn the ZHUM once opened.
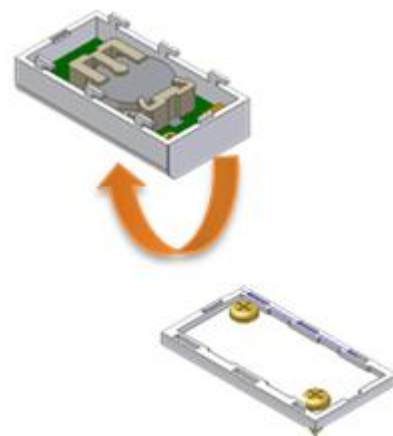
Push here

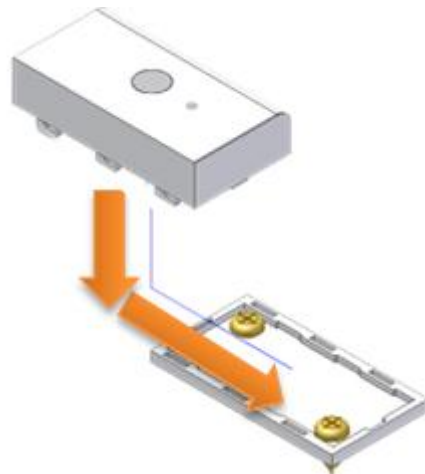Press the center leg of the battery holder to remove the battery.

Put the new battery.

At that time the ZHUM restarts. If it was associated with a network before shutting it will try to join the network. Otherwise, he was never associated it will search for an available network
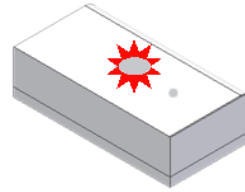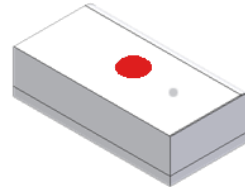
Close the case of the ZHUM.

III.2 START ZHUM

In the switched on of the object, it tries to join for a few seconds and blinks twice.

If a coordinator is present and allows the ZHUM to join the ZHUM LED lights for 2 seconds then turns off.
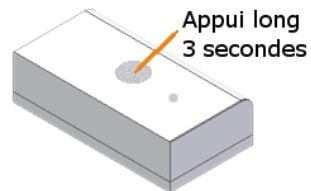
In cases where the association is not possible, the object will be put to sleep and automatically attempt to join after 15 minutes. This time will be doubled for each new failure of the association.
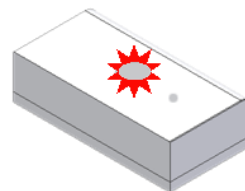
III.3 RESTART OF THE ASSOCIATION PHASE

If ZHUM is not associated, the user may at any time ask him to join a network.
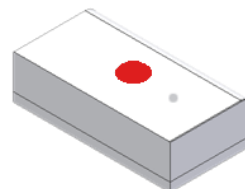
To do this, the user must press for 3 seconds the button.

If ZHUM was not associated it will flash rapidly for 20 seconds. The ZHUM seeks a coordinator during this flashing.

If the association is successful, the led of the ZHUM flashing during 2 seconds then turns off.
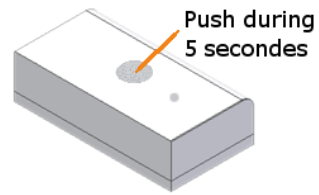
If the light does not flash ZHUM after making a long supports 3 seconds, this means it is already attached to a network.
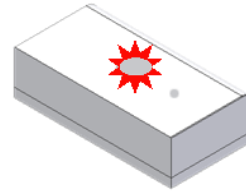
III.4 RESET

If necessary, the user can reset the ZHUM.

To do this, he must press the button for 5 seconds.

When ZHUM reset, the LED flashes twice then turns off.

IV TECHNICAL FEATURES

Weight	30 g (excluding battery)
Power supply	1 battery CR2032
Humidity measurement range	Range 0 à 100%
Temperature Measurment range	De -40 à 125 °C
Accuracy	± 3% (max), 0-80 % RH ± 0,4°C (max), -10 à 85°C
Life	> à 1 an
Radio range	100 m free field 20 m en indor
Managed channels (frequency)	16 channels ZigBee™ (2.405 à 2.480 GHz)

REPAIR AND MAINTENANCE

Defective hardware will be returned to the premises of CLEODE accompanied by:
- A copy of the delivery
- A detailed description of its appearance dysfunction observed

The average maintenance time is four (4) weeks from the back to the factory.

All support requests should be directed to the following address or by email to support@cleode.com:

CLEODE S.A.
Support and Maintenance

3, rue Thomas Edison
22300 Lannion
Tél : +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

End of the User Manual