

# User Manual

## Humidity & Temperature Sensor

### Model: Z711

FW V3.1

HW V7.1~V7.2

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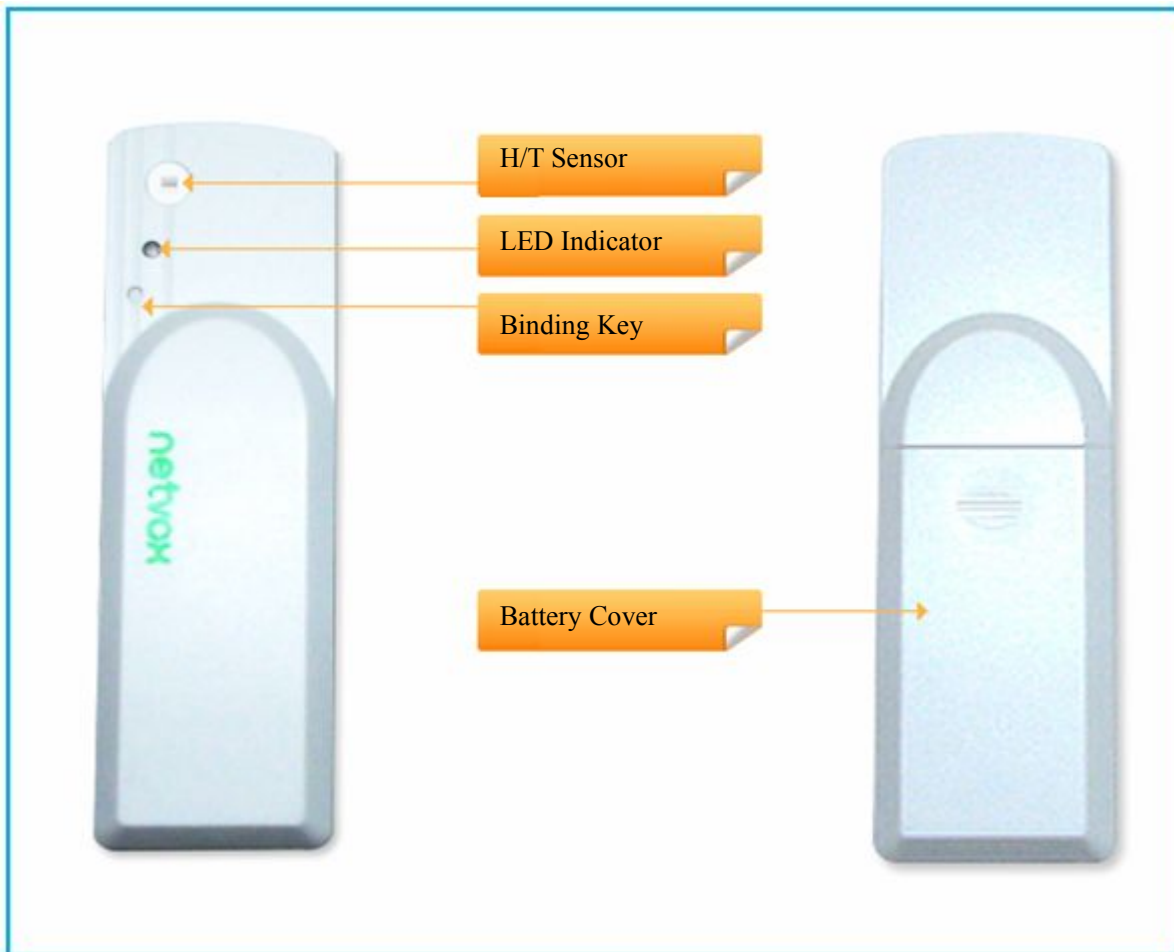
## 1. Introduction

Netvox Z711, a humidity and temperature sensor, acts as an End Device in ZigBee network. It does not perform permit-join function as a coordinator or a router for other devices to join the network. It is used for detecting indoor or outdoor ambient and sends the humidity and temperature data to a control center wirelessly.

### *What is ZigBee?*

ZigBee is a short range wireless transmission technology based on IEEE802.15.4 standard and supports multiple network topologies such as point-to-point, point-to-multipoint, and mesh networks. It is defined for a general-purpose, cost-effective, low-power-consumption, low-data-rate, and easy-to-install wireless solution for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation and home automation, etc.

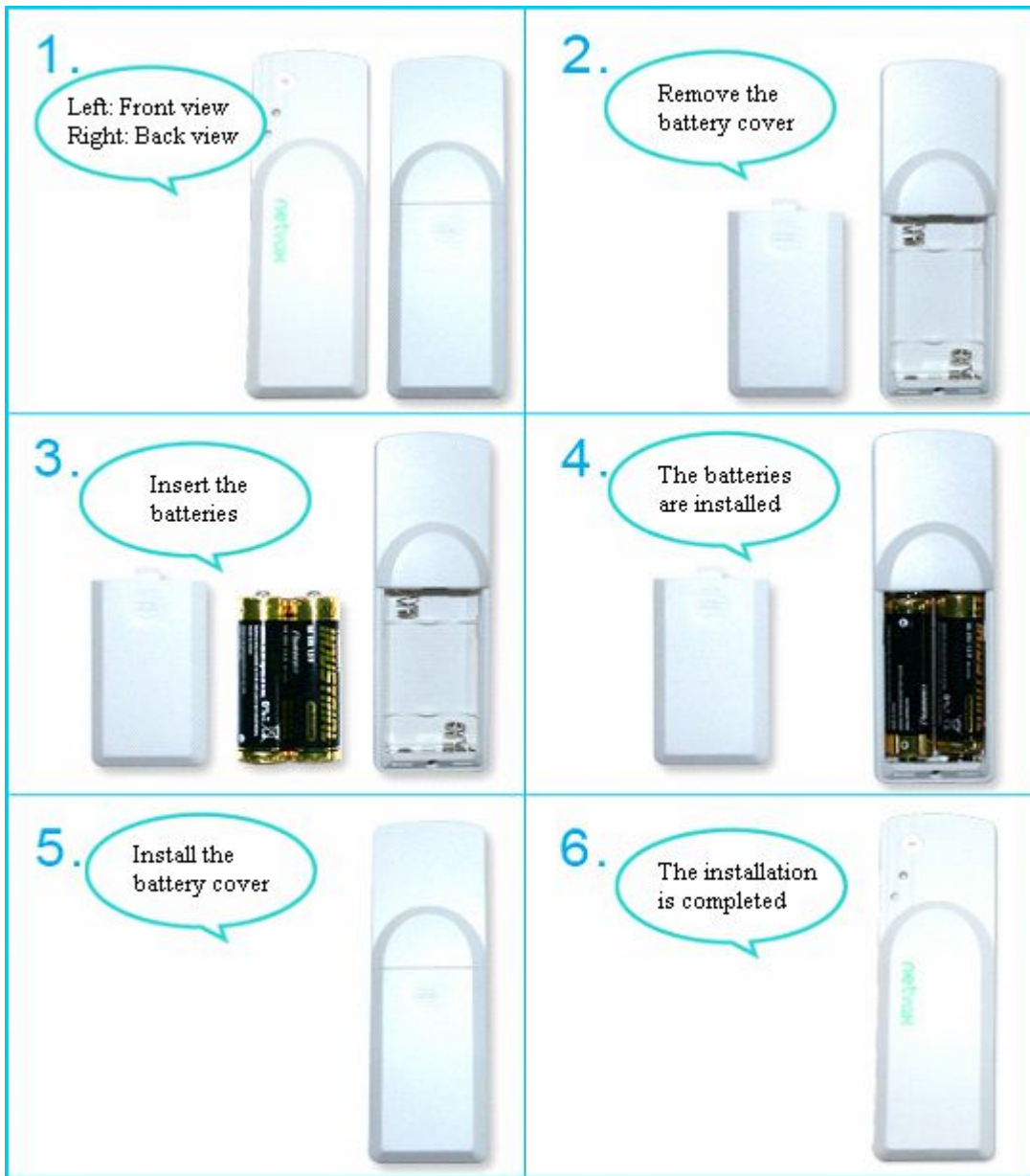
## 2. Product Appearance



### 3. Specification

- Fully IEEE 802.15.4 compliant
- Utilizes 2.4GHz ISM band; up to 16 channels
- Power supply: Two 1.5V AA batteries
- Operating voltage: 2.3V~3.6VDC
- Operating consumption: Up to 40mA
- Standby consumption: Up to 0.6uA
- Sensing range- temperature: -20°C~60°C ; humidity: 5%~95%
- Up to 150 meters wireless transmission range in non-obstacle space
- Easy installation and configuration

## 4. Installation



## 5. Setting up Z711

### 5-1. Join the ZigBee Network

After Z711 is turned on, it will search for an existing ZigBee network and send a request to join the network automatically. While Z711 is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, Z711 will be permitted to join the network.

Step1. Enable the permit-join function (valid for 60 seconds) of a coordinator or a router (please refer to

the user manual of the coordinator or the router to enable the permit-join feature).

Step2. Turn on Z711. It will start to search and join the network.

Step3. The indicator will flash **5 times** after it is joined successfully. Otherwise, the indicator will not flash.

## 5-2. Binding

To make Z711 work with the temperature/humidity measurement device, users need to bind the two devices:

Step1. Press and hold the *Binding Key* for 3 seconds to broadcast the binding request. The indicator will flash **once**.

Step2. Enable the binding feature of the temperature/humidity measurement device.

Step3. The indicator flashes **5 times** after the binding is completed; otherwise, it flashes **10 times**.

## 5-3. Sleeping Mode

Z711 is designed to go into sleeping mode for power-saving in some situations:

- A. While the device is in the network → the sleeping period is 5 minutes; it will wake up every 5 minutes to keep online.
- B. When it doesn't find a network to join → Z711 will go to sleeping mode. It will wake up every 15 minutes to search a network to join.
- C. Once Z711 was joined to a network and by any chance the network is no longer existed or the device is out of the network → Z711 will wake up every 15 minutes to find the network it joined before.

It never keeps in sleeping mode and continues to find out a network every 15 minutes. This condition would consume up to 30 times power spending compared to normal-operating status. To prevent this unwanted power consumption, we recommend that users remove the batteries to power off the device.

## 5-4. Wake up Z711

When users would like to setup or acquire data from the device which is in sleeping mode, we have to wake up the device as the following steps:

Step1. Press the *Binding Key*.

Step2. The indicator flashes **5 times** when Z711 is online.

Step3. Z711 will broadcast the device data such as IP address or IEEE address to the ZigBee network.

## 5-5. Battery

After joining the network, Z711 checks the battery level every 60 minutes. When the operating voltage is

lower than 2.4V, the indicator will flash **once**. Z711 will send a low-power report to the ZigBee network.

## **5-6. Restore to Factory Setting**

To restore it to factory setting, please follow the steps:

Step1. Remove the battery to power off Z711.

Step2. Press and hold the *Binding Key*, and then install the batteries to power on Z711.

Step3. Release the button. The indicator will show fast flashes, and the restore is completed.



## 6. Home Automation Clusters for Z711

A cluster is a set of related attributes and commands which are grouped together to provide a specific function. A simple example of a cluster would be the On/Off cluster which defines how an on/off switch behaves. This table lists the clusters which are supported by Z711.

Cluster ID for Z711	
Server side	Client side
<b>EP 0x01 (Device ID: Temperature Sensor (0x0302) )</b>	
Basic(0x0000)	<i>None</i>
Power Configuration(0x0001)	
Identify(0x0003)	
Commissioning(0x0015)	
Humidity Measurement(0x0405)	
Temperature Measurement(0x0402)	

This lists the attributes of the basic information.

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>ZCLVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x02	M
0x0001	<i>ApplicationVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only		O
0x0002	<i>StackVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2A	O
0x0003	<i>HWVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x47	O
0x0004	<i>ManufacturerName</i>	Character string	0 – 32 bytes	Read only	netvox	O

0x0005	<i>ModelIdentifier</i>	Character string	0 – 32 bytes	Read only	Z711E0ED	O
0x0006	<i>DateCode</i>	Character string	0 – 16 bytes	Read only	20130717	O
0x0007	<i>PowerSource</i>	8-bit Enumeration	0x00 – 0xff	Read only	0x03	M
0x0010	<i>LocationDescription</i>	Character string	0 – 16 bytes	Read/write		O
0x0011	<i>PhysicalEnvironment</i>	8-bit Enumeration	0x00 – 0xff	Read/write	0x00	O
0x0012	<i>DeviceEnabled</i>	Boolean	0x00 – 0x01	Read/write	0x01	M

## 7. Important Maintenance Instructions

- In cases of accidental liquid spills to a device, please leave the device dry properly before storing or using.
- Do not use or store the device in dusty or dirty areas.
- Do not use or store the device in extremely hot temperatures. High temperatures may damage the device or battery.
- Do not use or store the device in extremely cold temperatures. When the device warms to its normal temperature, moisture can form inside the device and damage the device or battery.
- Do not drop, knock, or shake the device. Rough handling would break it.
- Do not use strong chemicals or washing to clean the device.
- Do not paint the device. Paint would cause improper operation.

Handle your device, battery, and accessories with care. The suggestions above help you keep your device operational. For damaged device, please contact the authorized service center in your area.