User Manual

# Humidity & Temperature Sensor
Model: Z712

Table of Contents

1. Introduction

Netvox Z712, 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.
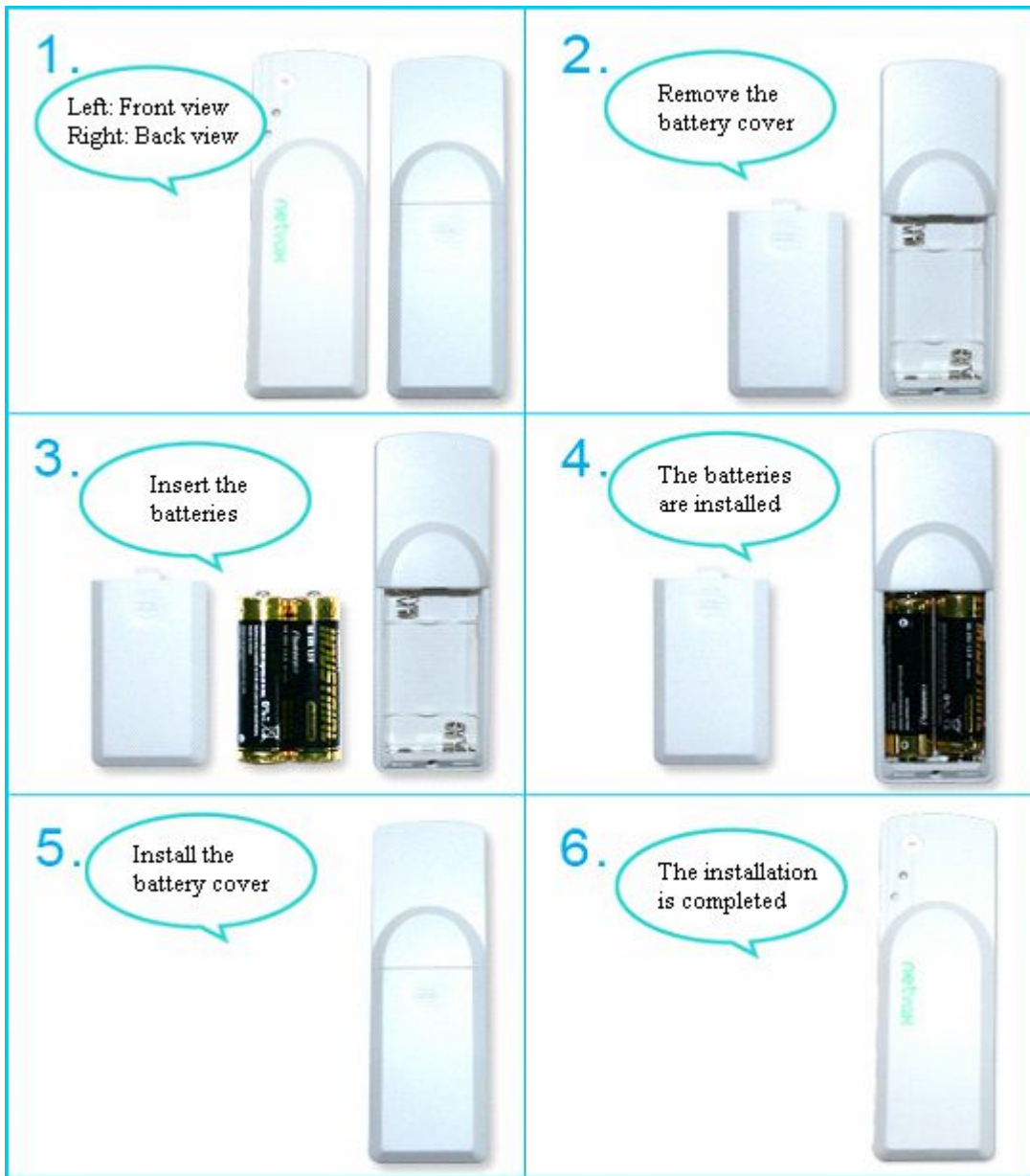
2. Product Appearance

H/T Sensor	
LED Indicator	
Binding Key	
Battery Cover	
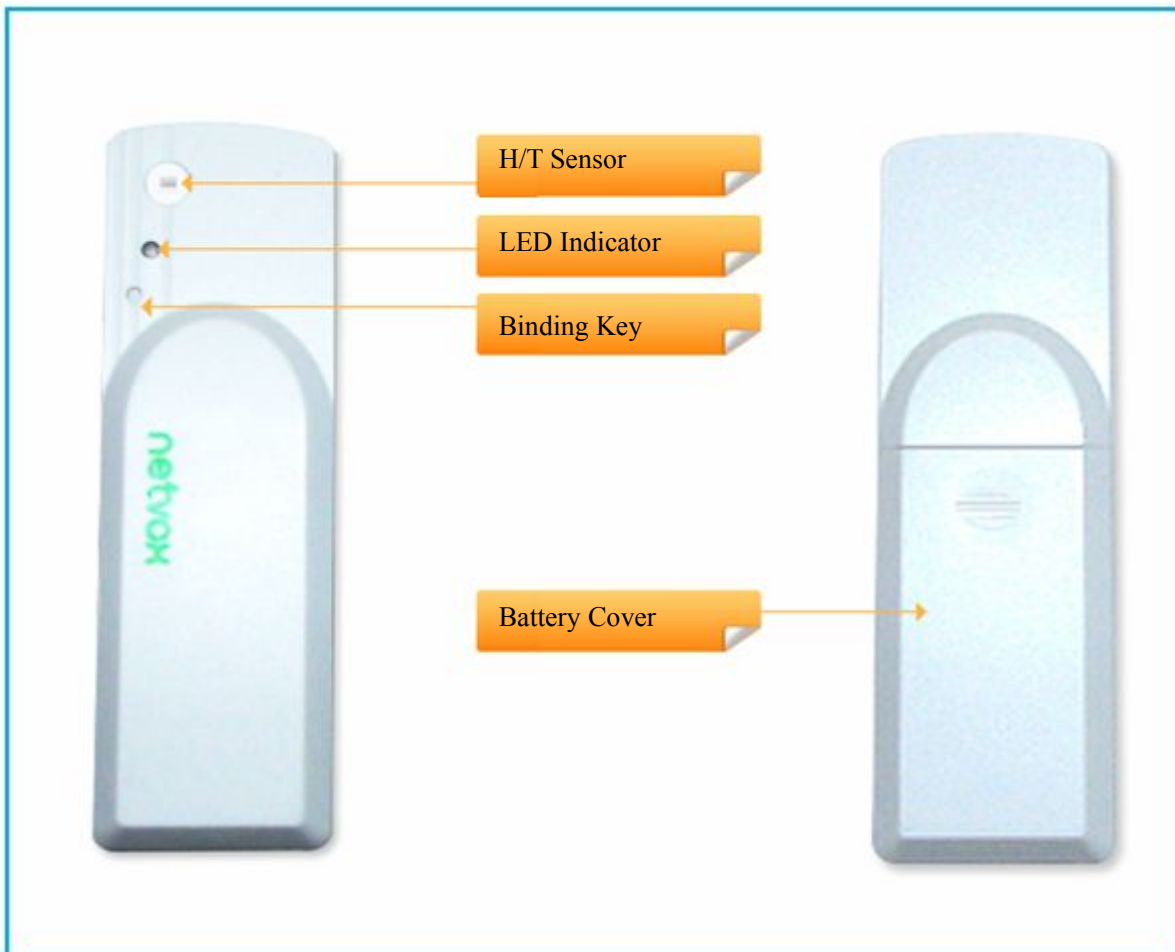
3. Specification

- 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℃~60℃; humidity: 5%~95%

- Up to 150 meters wireless transmission range in non-obstacle space

- Easy installation and configuration

4. Installation

1. Left: Front view
Right: Back view

2. Remove the battery cover

3. Insert the batteries

4. The batteries are installed

5. Install the battery cover

6. The installation is completed

5. Setting up Z712

5-1. Join the ZigBee Network

After Z712 is turned on, it will search for an existing ZigBee network and send a request to join the network automatically. While Z712 is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, Z712 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 Z712. 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 Z712 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

Z712 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 → Z712 will go to sleeping mode. It will wake up every 15 minutes to search a network to join.
C. Once Z712 was joined to a network and by any chance the network is no longer existed or the device is out of the network → Z712 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 Z712

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 Z712 is online.
Step3. Z712 will broadcast the device data such as IP address or IEEE address to the ZigBee network.

5-5. Battery

After joining the network, Z712 checks the battery level every 60 minutes. When the operating voltage is lower than 2.4V, the indicator will flash **once**. Z712 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 Z712.
Step2. Press and hold the *Binding Key*, and then install the batteries to power on Z712.
Step3. Release the button. The indicator will show fast flashes, and the restore is completed.

6. Home Automation Clusters for Z712

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 Z712.

Cluster ID for Z712	
Server side	**Client side**
EP 0x01 (Device ID: Temperature Sensor (0x0302))	
Basic(0x0000)	*None*
Power Configuration(0x0001)	
Identify(0x0003)	
Commissioning(0x0015)	
Hunidity Measurement(0x0405)	
Temperature Measurement(0x0402)	

This lists the attributes of the basic information.

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*ZCLVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x02	M
0x0001	*ApplicationVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only		O
0x0002	*StackVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2A	O
0x0003	*HWVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x47	O
0x0004	*ManufacturerName*	Character string	0 – 32 bytes	Read only	netvox	O
0x0005	*ModelIdentifier*	Character	0 – 32	Read only	Z712E0ED	O

		string	bytes			
0x0006	*DateCode*	Character string	0 – 16 bytes	Read only	20130717	O
0x0007	*PowerSource*	8-bit Enumeration	0x00 – 0xff	Read only	0x03	M
0x0010	*LocationDescription*	Character string	0 – 16 bytes	Read/write		O
0x0011	*PhysicalEnvironment*	8-bit Enumeration	0x00 – 0xff	Read/write	0x00	O
0x0012	*DeviceEnabled*	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.