



---

***ZigBee™- Wall Dimmer***

---

# **User Manual**

**Battery-Powered Wall Switch**

**Model: ZB02F**

20130620  
FW V3.0  
HW V1.4

# Table of Contents

|   |           |
|---|-----------|
| <b>1. Introduction.....</b>                       | <b>2</b>  |
| <b>2. Product Appearance.....</b>                 | <b>3</b>  |
| <b>3. Specification.....</b>                      | <b>4</b>  |
| <b>4. Installation.....</b>                       | <b>5</b>  |
| <b>5. Setting up ZB02F.....</b>                   | <b>5</b>  |
| 5-1. Turn On ZB02F.....                           | 5         |
| 5-2. Join the ZigBee Network.....                 | 6         |
| 5-3. Binding.....                                 | 6         |
| 5-4. Control.....                                 | 6         |
| 5-5. Sleeping Mode.....                           | 6         |
| 5-6. Battery.....                                 | 7         |
| 5-7. Restore to Factory Setting.....              | 7         |
| <b>6. Home Automation Clusters for ZB02F.....</b> | <b>8</b>  |
| <b>7. Important Maintenance Instructions.....</b> | <b>10</b> |

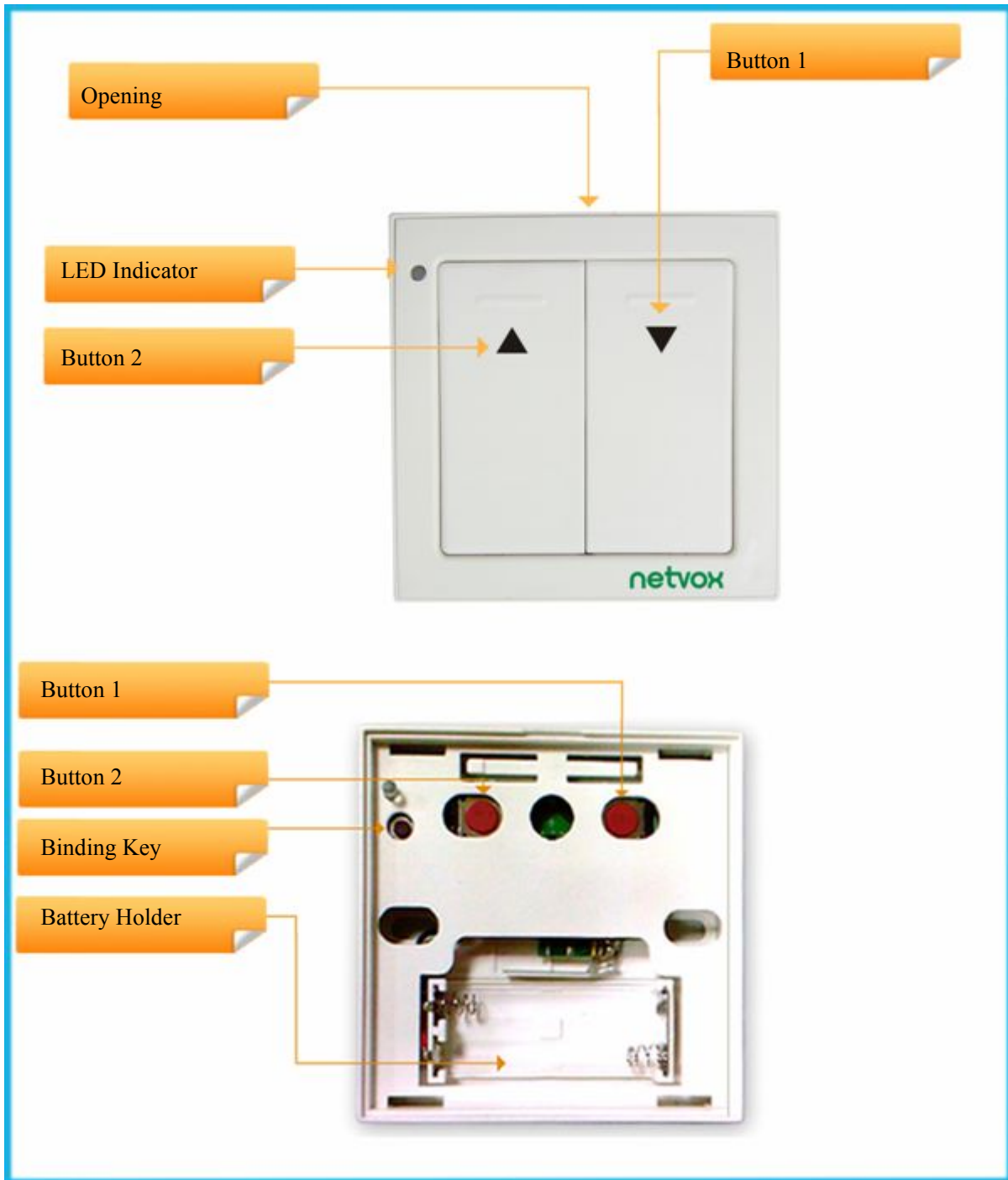
## 1. Introduction

Netvox ZB02F, a battery-powered wall switch, 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. ZB02F is featured to control the On/Off device or the dimmable device.

### *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.

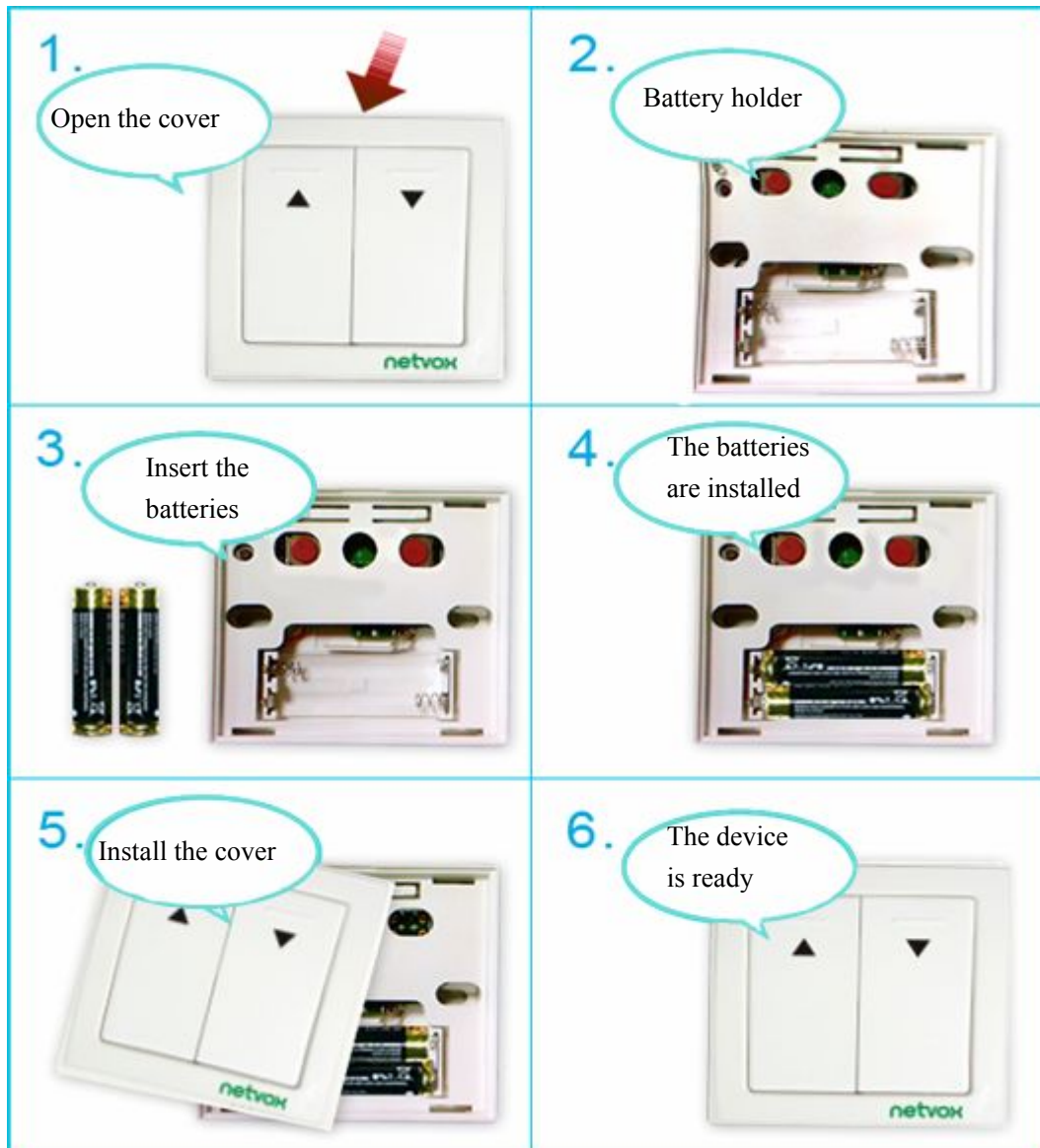
## 2. Product Appearance



### 3. Specification

- Fully IEEE 802.15.4 compliant
- Utilizes 2.4GHz ISM band; up to 16 channels
- Power supply: 2 x AAA batteries
- Operating consumption:  $\leq 40\text{mA}$
- Standby consumption:  $\leq 1\mu\text{A}$
- Up to 70 meters wireless transmission range in non-obstacle space
- Easy installation and configuration

## 4. Installation



## 5. Setting up ZB02F

### 5-1. Turn On ZB02F

For power saving, ZB02F is designed to get into **sleeping mode** when there is no activity for 2 minutes.

To manually turn on ZB02F, press the *Binding Key* **once**.

- When ZB02F is first time used or after resetting → it will try to join the network.
- When ZB02F is in a ZigBee network → it will send out the device data, like IEEE address/Network address, and the indicator will flash **5 times**. ZB02F will be activated for 2 minutes.
- When ZB02F was in a ZigBee network, but by any change it is offline → it will start to rejoin the

ZigBee network.

## 5-2. Join the ZigBee Network

After ZB02F is turned on, it will search for an existing ZigBee network and send a request to join the network automatically. While ZB02F is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, ZB02F 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 ZB02F. It will start to search and join the network.

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

ZB02F will try to join the network for 1 minute. Please try step1~3 again when it is failed to join the network.

## 5-3. Binding

ZB02F can be bound with the On/Off device or the dimmable device such as Netvox Z801RX.

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

Step2. Enable the binding feature of the On/Off device or the dimmable device.

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

## 5-4. Control

### A. On/Off control (0x0006)

Press Button 2 → send the turn-on command.

Press Button 1 → send the turn-off command.

### B. Level/Dimming Control (0x0008)

Press and hold Button 2 → send the level-up command.

Press and hold Button 1 → send the level-down command.

## 5-5. Sleeping Mode

ZB02F is designed to go into sleeping mode for power-saving in some situations:

C. While the device is in the network → the sleeping period is 5 minutes; it will wake up every 5

minutes to keep online.

- D. When it doesn't find a network to join → ZB02F will go to sleeping mode. It will wake up every 15 minutes to search a network to join.
- E. Once ZB02F was joined to a network and by any chance the network is no longer existed or the device is out of the network → ZB02F 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.

## 5-6. Battery

When the operating voltage is lower than 2.4V, the indicator will flash **once**. ZB02F will send a low-power report to the ZigBee network.

## 5-7. Restore to Factory Setting

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

- Step1. Remove the batteries to power off ZB02F.
- Step2. Press and hold the *Binding Key*, then power on ZB02F to complete the restore.



## 6. Home Automation Clusters for ZB02F

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 ZB02F.

1.End Point(s) : ZB02F : 0x01

2.Device ID : on/off Switch (0x0104)

3.EndPoint Cluster ID

| Server side              | Client side              |
|--------------------------|--------------------------|
| Basic (0x0000)           |                          |
| Identify ( 0x0003 )      | On/off ( 0x0006 )        |
| Commissioning ( 0x0015 ) | Level control ( 0x0008 ) |
|                          |                          |

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 | 0x03      | M                    |
| 0x0001     | <i>ApplicationVersion</i> | Unsigned 8-bit integer | 0x00 – 0xff  | Read only | 0x1E      | O                    |
| 0x0002     | <i>StackVersion</i>       | Unsigned 8-bit integer | 0x00 – 0xff  | Read only | 0x2F      | O                    |
| 0x0003     | <i>HWVersion</i>          | Unsigned 8-bit integer | 0x00 – 0xff  | Read only | 0x28      | 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 | ZB02FE2ED | O                    |

|        |                      |                   |              |            |          |   |
|--------|----------------------|-------------------|--------------|------------|----------|---|
| 0x0006 | <i>DateCode</i>      | Character string  | 0 – 16 bytes | Read only  | 20130121 | O |
| 0x0007 | <i>PowerSource</i>   | 8-bit Enumeration | 0x00 – 0xff  | Read only  | 0x03     | M |
| 0x0012 | <i>DeviceEnabled</i> | Boolean           | 0x00 – 0x01  | Read/write | 0x01     | O |

## 7. Important Maintenance Instructions

- Please keep the device in a dry place. Precipitation, humidity, and all types of liquids or moisture can contain minerals that corrode electronic circuits. 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.