netvox™

ZigBee^{TM}-Range Extender

User Manual

Range Extender

With backup battery

Model: Z809D

For Home Automation

20120831

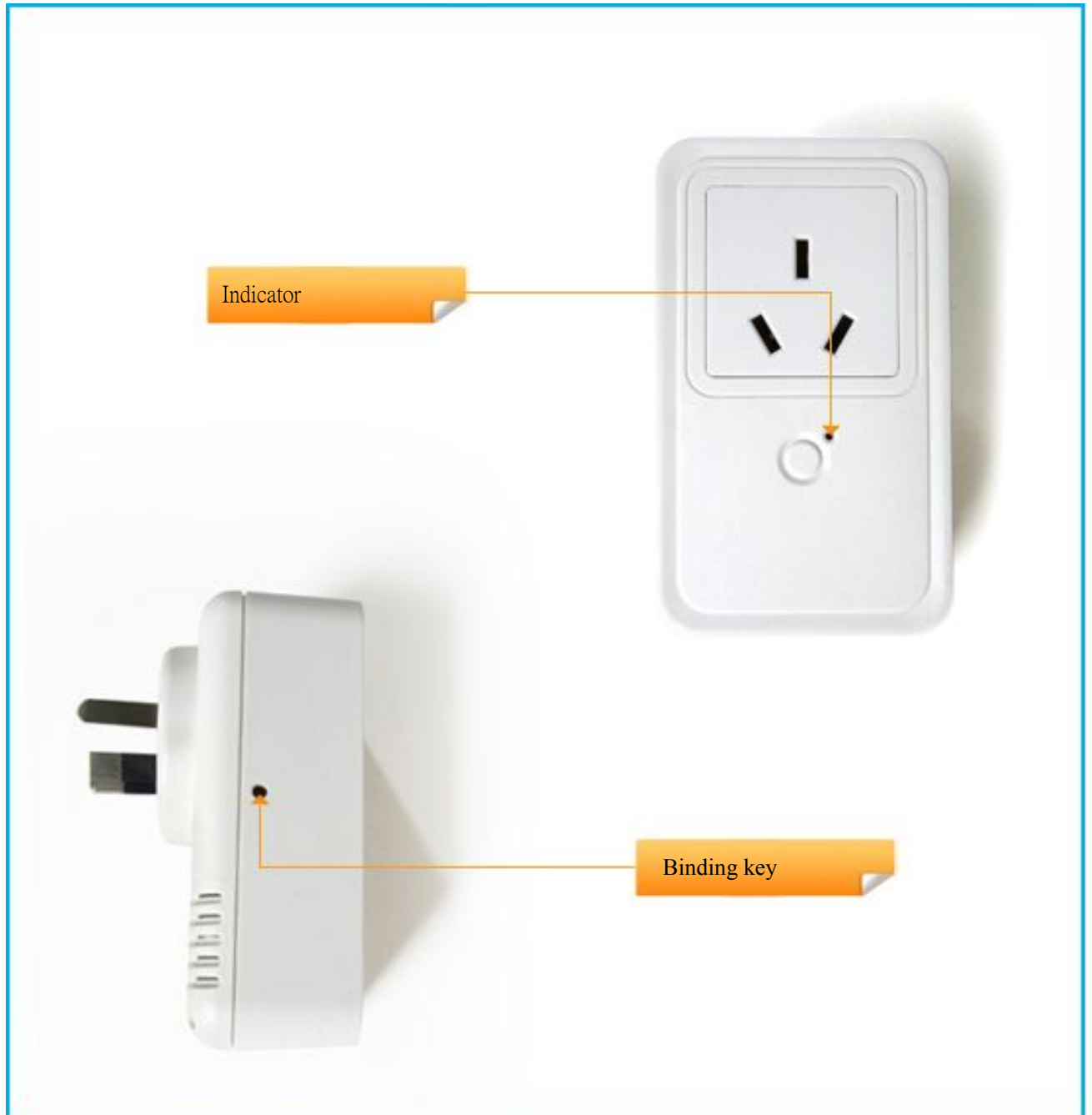# Range Extender

Indicator

Binding key

Figure: Z809D (different plug head is provided for different region)

Introduction

NETVOX Z809D is a dedicated network range extender. It is designed to have electrical outlet which inherent the look of its Z809A neighbor. The difference between them is that Z809D doesn't have power consumption monitoring nor does it support wireless on/off control. User may use it as a simple range extender.
Z809D is equipped with a battery backup power in time of power cut.

Z809D is IEEE802.15.4 ZigBee HA compliant and is applicable in any ZigBee Pro HA Protocol network.

What is ZigBee?

ZigBee is a short range wireless transmission technology which defined for a minimum complexity, low power consumption, low data rate, cost effective wireless solution. ZigBee lies in between wireless markup technology and Bluetooth. ZigBee is based on IEEE802.15.4 standard, the mutual co-ordination between thousands of sensors to exchange data. Sensor to sensor or node-to-node communication is achieved through relays of control data between devices with only a fraction of energy use which denoted for highly transmission efficiency.

Note: Wireless communication, in some real use cases, can be limited by the signal blockage. Please consult your service provider or place of purchase.

Product Specification

✓ Fully IEEE 802.15.4 compliant (ZigBee Pro)

✓ Utilizes 2.4GHz ISM band, up to 16 channels

✓ Signal power: 7dBm (max); Rx sensitivity: -101dBm

✓ AC Input: 100-240VAC, 50/60HZ power

✓ Operating Temperature: -10°C to 50°C;

✓ Storage temperature: -40°C to 85°C;

✓ Up to 150 meters (line-of-sight)

✓ Simple operation and device configuration

Operating Ambient	Temp: -10°C ~50°C R.Hum: 5% ~ 85%
Storage Ambient	Temp: -40°C ~85°C
Backup Battery	Lasts 10 hr. approx.

Setting up the Z809D and network

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Setting Up Summary
(1) Startup and network association
(2) It is ready to be used.

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Step 1. Startup and Network Association

To allow Z809D to function, it must first join to a ZigBee network. When it is given powered it will automatically start searching for an existed network. So before you give power to Z809D make sure it is within the wireless coverage distance (~150 meters or less) and make sure *first* you have the *permit-join feature enabled* either on a coordinator or a router device in the network so that Z809D will join to the network through it then give power to Z809D and it will join into the network by itself.

*On how to enable permit-join please refer to the router or coordinator device user manual

⚠️ If you wish to remove Z809D from previous joined network, please read Restore to factory section of this manual first. Then come back to this section.

Operation:
Ensure you have detached any home appliance from Z809D.
Step 1: Make sure you have open up permit-join function (valid for 60 seconds) of a coordinator or a router.
Step 2: Now plug in Z809D into AC power socket to power it. Z809D device will start to search for the network within reach.
Step 3: A non-flashing solid light indicates successful otherwise the indicator stays dark.

How to use Z809D

On/Off control

Z809D doesn't support wireless on/off control.

Permit other device to join

Z809D is featured to be a router in the network. It permits other devices to join the network. In normal operation, by default the router device Z809D does not permit any device to join to the network to protect the network from unexpected or unauthorized join attempt. You will need to open up the permit-join on Z809D or on other router device to allow new devices (a router or an end device) to join.

Z809D is capable of holding 6 routers and 14 end devices.

Operation:
1. Short press the binding key only once. (press the 2nd time will force it to cease)
2. The permit join is now enabled for 60 seconds during which the indicator light will flash 60 times.
3. Z809D waits the new device to join in automatically. Please note that the maximum waiting time to join is 60 seconds. Repeat the process if you missed the 60 seconds period.

To force to stop, by pressing the binding key once again before permit-join expires.

Restore to factory setting

Z809D is capable of storing and saving includes network routing information. If you wish to remove Z809D from an exited network, you would need to clear the saved routing information to join to a new network by simply reset the device to restore to the factory setting.

Step 1. Hold on to the binding key 15 seconds. Until you see indicator flash once then release the key. Within 2 seconds, short press binding key once again.
Step 2. If successful, the indicator light flashes 10 times.
Now if you wish Z809D to join to a new network please power cycle the device again to put the device into network search mode.

The power backup

Z809D has the ability to continue to function at the event of power outage.
There are times when user would want to disable the supplied power from backup battery to function in the time of power outage event.

To disable:
Hold press binding key for 3 seconds, until the indicator flashes once then release the key.
If successful, the indicator would flash 10 times quickly.

To enable:
Hold press binding key for 3 seconds, until the indicator flashes once then release the key.
If successful, the indicator would flash 10 times slowly.

> ⚠️ When Z809D is power cycled, by default, the supplied power from backup battery is enabled.

Backup battery power condition indication

Z809 device checks its backup battery level every 10 minutes. When the battery is bellow 2.6V, Z809 will start the battery charging cycle with its indicator flashes 10 times slowly; and stop charging when it is above 3.0V.

Clusters of Home Automation for Z809D

Home Automation device feature is defined by the endpoint which contains functional clusters. Table 1 lists clusters for the endpoint of Z809D

Table 1: Clusters supported by the endpoint

Cluster for Z809D Device ID: Range Extender (0x0008) EndPoint: 0x01	
Server side	**Client side**
Basic (0x0000)	*None*
Identify (0x0003)	
Commission (0x0015)	

Attributes of the Basic Information

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*ZCLVersion*	8-bit Unsigned integer	0x00 –0xff	Read only	0x03	M
0x0001	*ApplicationVersion*	8-bit Unsigned integer	0x00 –0xff	Read only	0x0A	O
0x0002	*StackVersion*	8-bit Unsigned integer	0x00 –0xff	Read only	0x46	O
0x0003	*HWVersion*	8-bit Unsigned integer	0x00 –0xff	Read only	0x01	O
0x0004	*ManufacturerName*	Character string	0 – 32 Bytes	Read only	netvox	O
0x0005	*ModelIdentifier*	Character string	0 – 32bytes	Read only	Z809DE3R	O
0x0006	*DateCode*	Character string	0 – 16 bytes	Read only	20120522	O
0x0007	*PowerSource*	8-bit Enumeration	0x00 –0xff	Read only	0x81	M

Attributes of the device configuration attribute set

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0010	*LocationDescription*	Character string	0 – 16bytes	Read/write	Empty string	O
0x0011	*PhysicalEnvironment*	8-bit Enumeration	0x00 –0xff	Read/write	0x00	O
0x0012	*DeviceEnabled*	Boolean	0x00–0x01	Read/write	0x01	M

Important Maintenance Instructions

As the device is not water proof it is recommended to keep the device in a dry place. Liquid and heavy moisture contains minerals that may oxidize the electronic circuitry. In case of liquid spill, please leave the device to completely dry before storing or using.

- Do not use or store the device in a dusty area. Dust may cause electronic parts to destroy.
- Do not use or store the device in an over heated place. Store in a hotter temperature than the suggested maximum temperature may shorten the life span of the device; and may damage the battery and causing the housing to deform.
- Do not use or store the device in a very cold place than the suggested minimum temperature. The water can be condensed inside the device when moving to an area that is higher in temperature. This can severely damage the PCB board and circuitry. This may shorten the life span of the device; damage the battery and cause the housing to deform.
- Do not throw or strongly vibrate the device. This may damage connectivity of the electronic parts and other sensitive components on the PCB board.
- Do not use any strong chemical or washing to cleanse the device.
- Do not use any coloring materials on any removable parts which my cause poor connections and may keep the device from function properly.

All the above applies to the purchased products, battery and other packaged items. If any unusable or damaged items are found please return the product to your nearest authorized repairing center.

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