



ZigBee™- Measurement and Switch Socket

User Manual

Measurement and Switch Socket

Model: Z809A

Firmware: V3.5

Hardware: V1.2

Table of Contents

1. Introduction.....	2
2. Product Appearance.....	2
3. Specification.....	3
4. Installation.....	4
5. Setting up Z809A.....	4
5-1. Join the ZigBee Network.....	4
5-2. Permit-Join.....	4
5-3. Binding.....	4
5-4. Control.....	5
5-5. Reset Power Consumption Summation.....	5
5-6. Restore to Factory Setting.....	5
5-7. Power Metering.....	5
5-8. Report Configuration for Developer Only.....	6
6. Home Automation Clusters for Z809A.....	8
7. Netvox App Control Interface.....	9
8. Loading property.....	12
9. Important Maintenance Instructions.....	13

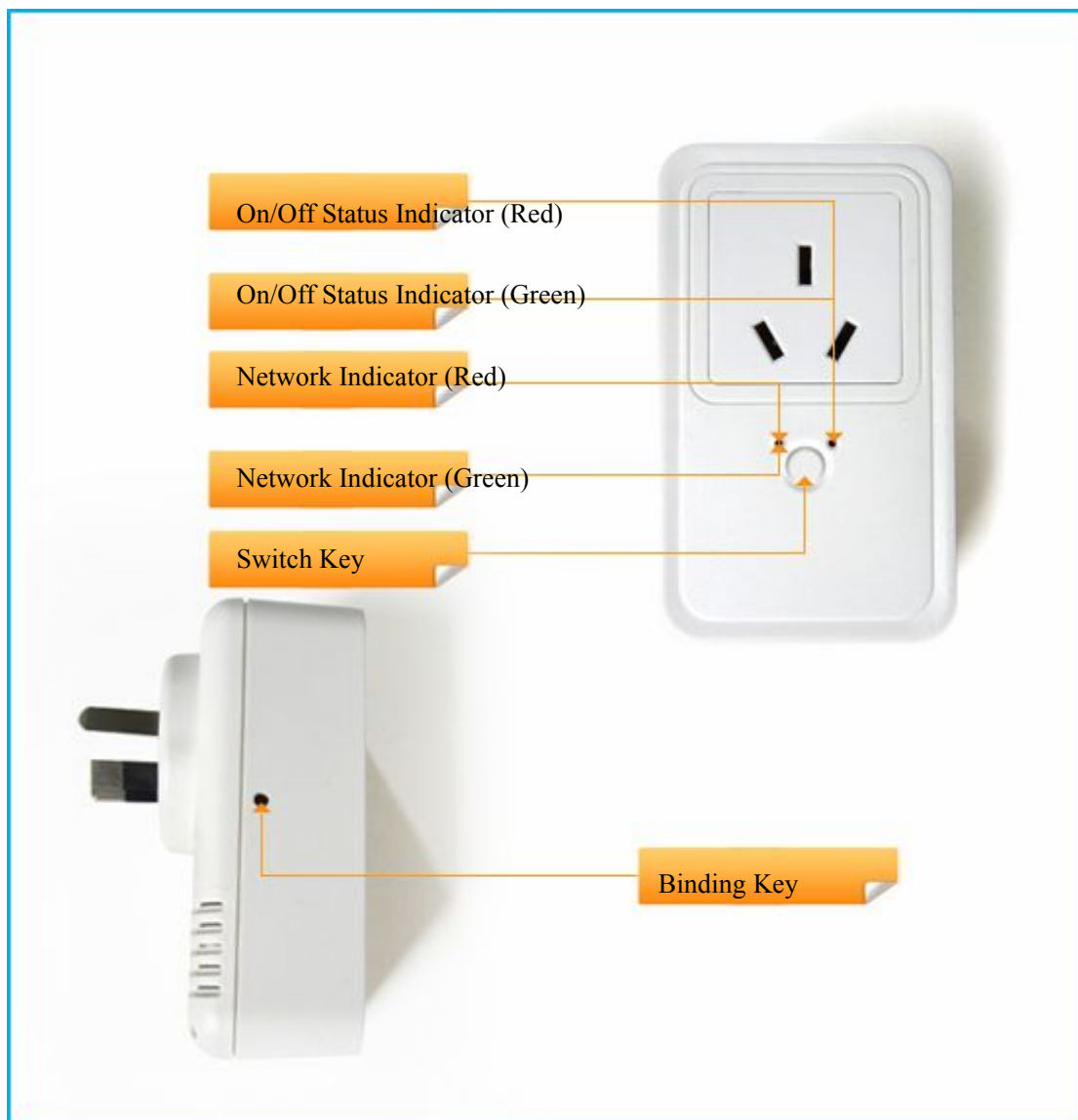
1. Introduction

Netvox Z809A, a ZigBee measurement and switch socket, acts as a Router Device in ZigBee network. It performs the On/Off controlling feature. Users are able to wirelessly control the switch through paired soft On/Off button or paired remote controller. Users could also monitor the power consumptions such as current/ voltage/ power/ energy through Netvox ZiG-BUTLER application.

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



Socket/Plug Selection



3. Specification

- Fully IEEE 802.15.4 compliant
- Utilizes 2.4GHz ISM band; up to 16 channels
- Power supply: 100~240VAC; 50/60Hz
- Power consumption: 15mA@220V
- Resistive load: 250VAC/ 16A
- Inductive load: 220VAC/ 8A
- Monitoring range 100mA to 16A with $\pm 1\%$ accuracy
- Relay lifetime: 100,000 times
- Up to 210 meters wireless transmission range in non-obstacle space
- Easy installation and configuration

4. Installation

- This device is NOT truly waterproof/ resistant and is for indoor use.
- Power on Z809A using 100~240 VAC power supply. All the indicators will flash **once**.

5. Setting up Z809A

5-1. Join the ZigBee Network

After Z809A is turned on (all indicators flash once), it will search for an existing ZigBee network and send a request to join the network automatically. While Z809A is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, Z809A will be permitted to join the network.

- A. Before Z809A is joined a ZigBee network → the network indicator will stay off.
- B. After Z809A has joined a ZigBee network → the network indicator will stay **green**.

5-2. Permit-Join

Z809A is designed to work as a router. To allow other devices to join the ZigBee network, users could enable the Permit-Join feature using the tips:

- A. Press the *Binding Key* to enable the Permit-Join feature. The network indicator will flash **green** per second.
- B. The default Permit-Join period of time is 60 seconds.

Z809A allows up to 14 End Devices to join its network.

5-3. Binding

Z809A can be bound with the device which supports On/Off cluster (such as Netvox Z501 or client devices which are carrying meter cluster).

- Step1. Press and hold the *Binding Key* for 3 seconds.
- Step2. Release the *Binding Key* when the network indicator flashes **green once**.
- Step3. Enable the binding feature of the On/Off device.
- Step4. The network indicator flashes **green 5 times** after the binding is completed; otherwise, it will flash **green 10 times**.

5-4. Control

A. Remote Control

Users are able to use the device which is bound with Z809A to control it.

While the switch is ON, the On/Off Status Indicator shows **green**.

While the switch is OFF, the On/Off Status Indicator shows **red**.

B. Switch Key Control

Users also can control Z809A via the *Switch Key*.

5-5. Reset Power Consumption Summation

To reset the power consumption data, please follow the steps:

Step1. Press and hold the *Binding Key* for 20 seconds. The network indicator will flash **green 4 times** (at the 3rd, the 10th, the 15th, and the 20th second).

Step2. After releasing the *Binding Key*, press the *Switch Key* within 2 seconds. The network indicator will flash **green once**.

5-6. Restore to Factory Setting

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

Step1. Press and hold the *Binding Key* for 15 seconds. The network indicator will flash **green 3 times** (at the 3rd, the 10th, and the 15th second).

Step2. After releasing the *Binding Key*, press the *Switch Key* within 2 seconds. The network indicator will rapidly flash **green**.

Step3. After fast flashes, Z809A will reboot, and the restore is completed.

5-7. Power Metering

Z809A reports the power consumption data to the ZigBee network.

The related Cluster ID:

- Simple Metering Cluster ID (0x0702)
- Electrical Measurement Cluster ID (0x0B04)

The related Attribute ID of Simple Metering Cluster ID:

- Current Attribute ID: 0xE000; unit: mA
- Voltage Attribute ID: 0xE001; unit: V
- Power Attribute ID: 0xE002; unit: W
- Energy Attribute ID: 0xE003; related to AttributeID CurrentSummationDeliver (0x0000); unit: Wh

The related Attribute ID of Electrical Measurement Cluster ID:

- Current Attribute ID: 0x0508
- Voltage Attribute ID: 0x0505
- Power Attribute ID: 0x050B
- Power Factor Attribute ID: 0x0510

The command to reset power consumption summation: 0xE0. The format is:

Bits:8	16	8	8	8
Frame control	Manufacturer code	Transaction Sequence number	Command identifier	Frame payload
				Action
0x05	0x109F		0xe0	0x00

(clusterid : 0x0702 , Action : 0x00)

5-8. Report Configuration for Developer Only

After the device receives ConfigreReport (Max! = 0xFFFF) command, if the configuration is successful, it will immediately issue a Report command and then it will report according to report setting.

After powering on, Z809A will detect battery voltage, if the device report has been previously configured, it will issue 1 or 2 reports within 1-60 seconds randomly on the device, and thereafter it will report according to the configuration.

Report setting table:

Min Interval (Unit:second)	Max Interval (Unit:second)	Reportable Change	Change rate \geq Reportable Change	Change rate $<$ Reportable Change
1-65534	1-65534	$\neq 0$	To report per Minimum interval	To report per Maximum interval
		0	To report per Minimum interval	To report per Minimum interval
0	1-65534	$\neq 0$	To report instantly	To report per Maximum interval
		0	To report per second	To report per second
1-65534	0	$\neq 0$	To report per Minimum interval	No report
		0	To report per Minimum interval	To report per Minimum interval
0	0	$\neq 0$	To report instantly	No report
		0	To report per second	To report per second
Any	65535	Any	Stop reporting	
65535	Any	Any	Stop reporting	

**Note: (1) It is not suggested to set:
Min Interval =0,**

Reportable Change=0.

Otherwise, Z502B will report very densely to block up the network.

(2) Different attributes have different units, please refer to the product specific instructions for units of reportable change.

6. Home Automation Clusters for Z809A

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 Z809A.

- 1.End Point(s) : 0x01
- 2.Device ID : Mains Power Outlet (0009)
- 3.EndPoint Cluster ID

Cluster ID for Z-809A	
Server side	Client side
EP 0x01 Mains Power Outlet (0009)	
Basic (0x0000)	<i>None</i>
Identify (0x0003)	
Groups (0x0004)	
Scenes (0x0005)	
On/Off (0x0006)	
Diagnostics(0x0B05)	
Commission (0x0015)	
Electrical Measurement (0x0B04)	
Simple Metering (0x0702)	

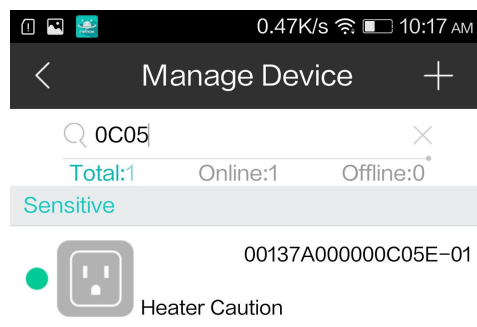
Attributes of the Basic Device Information attribute set

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>ZCLVersion</i>	8-bit Unsigned integer	0x00 –0xff	Read only	0x03	M
0x0001	<i>ApplicationVersion</i>	8-bit Unsigned integer	0x00 –0xff	Read only	0x21	O

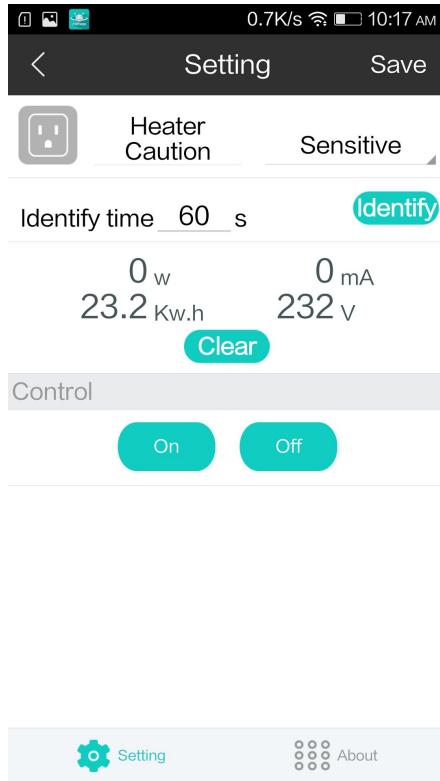
Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0002	<i>StackVersion</i>	8-bit Unsigned integer	0x00 –0xff	Read only	0x35	O
0x0003	<i>HWVersion</i>	8-bit Unsigned integer	0x00 –0xff	Read only	0x0C	O
0x0004	<i>ManufacturerName</i>	Character string	0 – 32 Bytes	Read only	netvox	O
0x0005	<i>ModelIdentifier</i>	Character string	0 – 32bytes	Read only	Z-809AE3R	O
0x0006	<i>DateCode</i>	Character string	0 – 16 bytes	Read only	20141020	O
0x0007	<i>PowerSource</i>	8-bit Enumeration	0x00 –0xff	Read only	0x01	M

7. Netvox App Control Interface

1. After joining in Netvox App system, device IEEE address will show up in device management interface. Select “Mains Power Outlet”; there is only an EP as below:



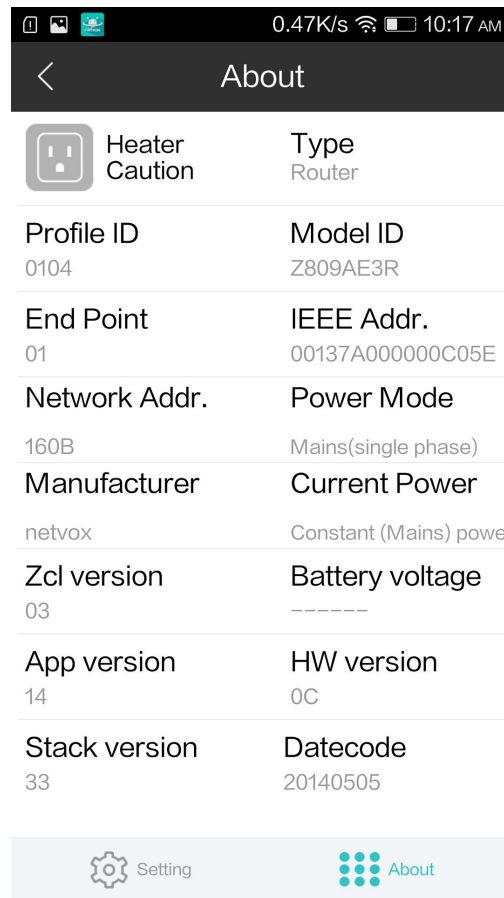
2. Select “Mains Power Outlet” to enter setting interface. Click “bind device” as below:



3. Click “Power Status” as below:



4. Click “About Devices” to show information as below:



8. Loading property

<u>Rated Load (AC)</u> <u>** Remark**</u>	<u>Max. Load with LEDs</u> <u>**Remark**</u>	<u>Max. Inductive Load (cosφ=0.4)</u>	<u>Max. Load with Electric Motors</u>	<u>Overload Protection with Auto Power Cutoff</u>
EU Type : 16A/250V ~ UK Type : 13A/250V ~ AU Type : 10A/250V ~ US Type : 15A/125V ~	<u>LED</u> power less than <u>400W</u> , less than <u>8 LEDs</u>	<u>8A/250V</u>	<u>1.5HP/250VAC</u>	<u>YES</u>

- Load Protection:
 - The current is over 16A → it will be off-load in 2 seconds

After it is off-load, the Bit1 (Current OverLoad) of the parameter ACAAlarmsMask will be checked:

- Bit1 (Current OverLoad) is 1 → it sends the alarm message
- Bit1 (Current OverLoad) is 0 → it doesn't send the alarm message

When it sends the alarm message → AlarmCluster = 0x0B04; AlarmCode = 0xF0; Network Indicator flashes

10 times.

9. 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.

FCC Statement:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note:

1. Use the product in the environment with the temperature between -10°C and 50°C .

For the following equipment:

CE 0700

Is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC,
The equipment was passed. The test was performed according to the following European standards:

EN 301 489-1 V1.9.2: 2011-09

ETSI EN 301 489-17 V2.1.1: 2009-05

ETSI EN 300 328 V1.7.1:2006-10

EN62311:2008

EN 60950-1:2006+A11:2009+A1:2010+A12:2011

**CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS**