



ZigBee™-Power Switch Control Unit

User Manual

Power Switch Control Unit

Model: Z811

Z811

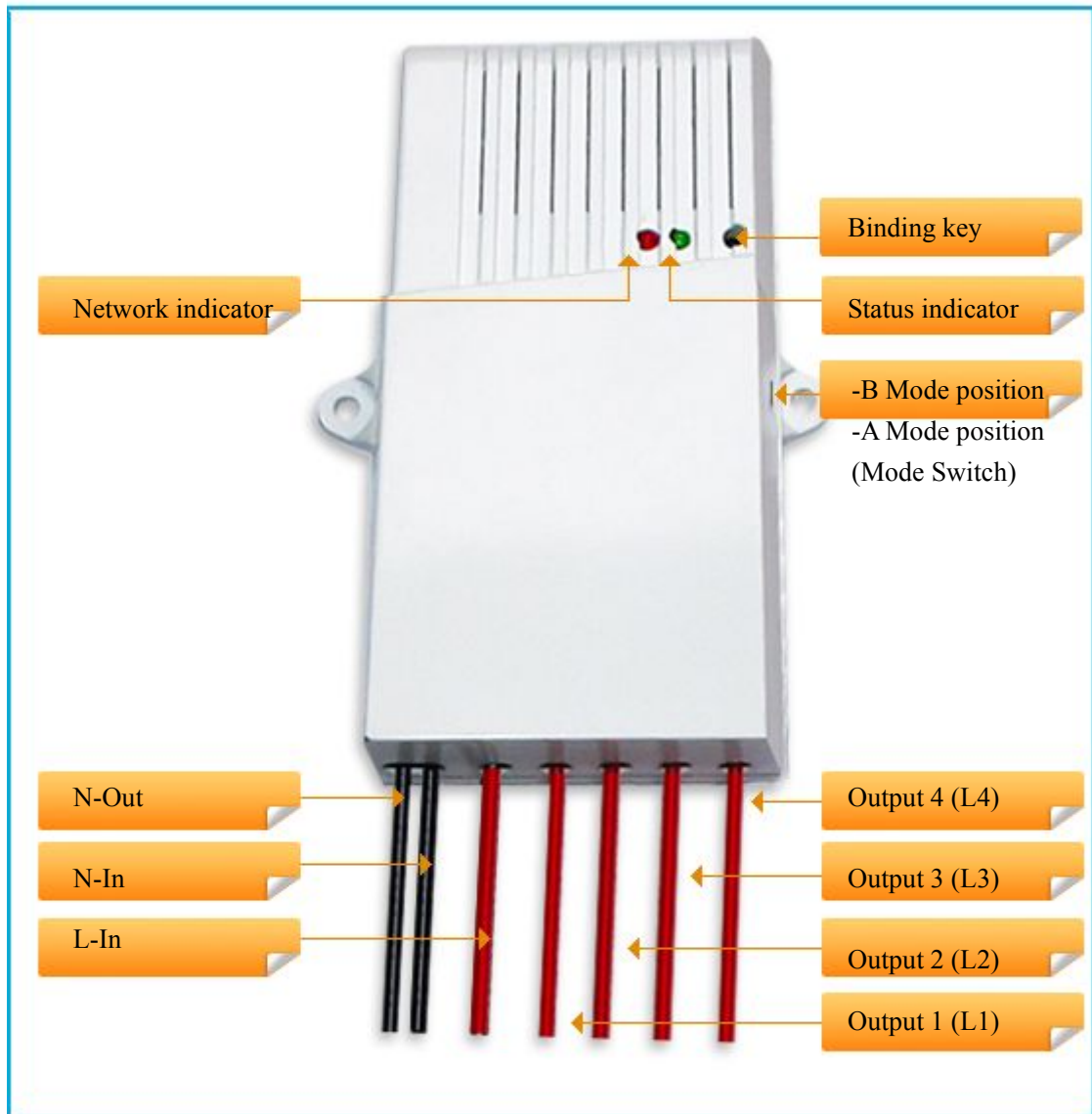


Figure 1: Z811 and cabling

Introduction

NETVOX Z811 is a ZigBee Home Automation enabled AC power switching unit. Z811 acts as a router device in the network and is able to permit other devices to join into the network through permit-join enabling. User is able to seamless control Z811 with ZigBee *ON*, *OFF* and *Toggle* controller.

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
- ✓ Utilizes 2.4GHz ISM band, up to 16 channels
- ✓ 100-240VAC, 50/60HZ input power
- ✓ Load: **Resistive** 10A/240VAC / **Inductive** 3A/240VAC
- ✓ Up to 120 meters non-obstacle wireless distance
- ✓ Simple operation and device configuration

Setting up the Z811 and network

Setting Up Summary

- (1) Power up and network association
- (2) Pairing with controller device
- (3) It is ready to be used.

Step 1. Startup and Network Association

To allow Z811 to function, it must first join to a ZigBee network. When it is given power it will automatically start searching for an existed network. So before you give power to Z811 make sure it is within the wireless coverage distance (~120 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 Z811 will join to the network through it; then give power to Z811 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*

** For wiring refer to [How to wire the AC input and output](#)*

Operation:

Step 1: Make sure you have opened up permit-join function (valid for 60 seconds) of a coordinator or a router which is in the network.

Step 2: Now wire the AC cable of Z811 to the AC source to power it up. Z811 device will start to search for the network within reach. (Refer to [How to wire the AC input and output](#))

A non-flashing solid light indicates successful otherwise the indicator stays dark. If the indicator stays dark, make sure that the permit-join of a router or coordinator is enabled first.



In case that the device has previously joined to a network and that you wish to join to a new network, please restore the device to factory setting (refer to [Restore to factory setting](#) section).

Troubleshooting

When your device seems to fail no matter how much you do, the best way is to perform device restore to factory setting to clear up all the settings previously performed and start all from scratch.

How to wire the AC inputs and the AC outputs

AC Power input

Attach the AC source cable according to Figure 1 and 2.

Power source range 100~240V, 50/60HZ.

AC Power outputs

There are four relays outputs on the PCB board with external screw contacts.

Output L1 ~ L4 are to be connected to your home appliances.

Resistive load Max. 2200 Watt @ each output.

There are 2 neutral wires namely Nin and Nout. In real current circuit, these 2 neutral wires are actually one. We provide an extra neutral wire for your installation convenience.

Z811 cabling configuration

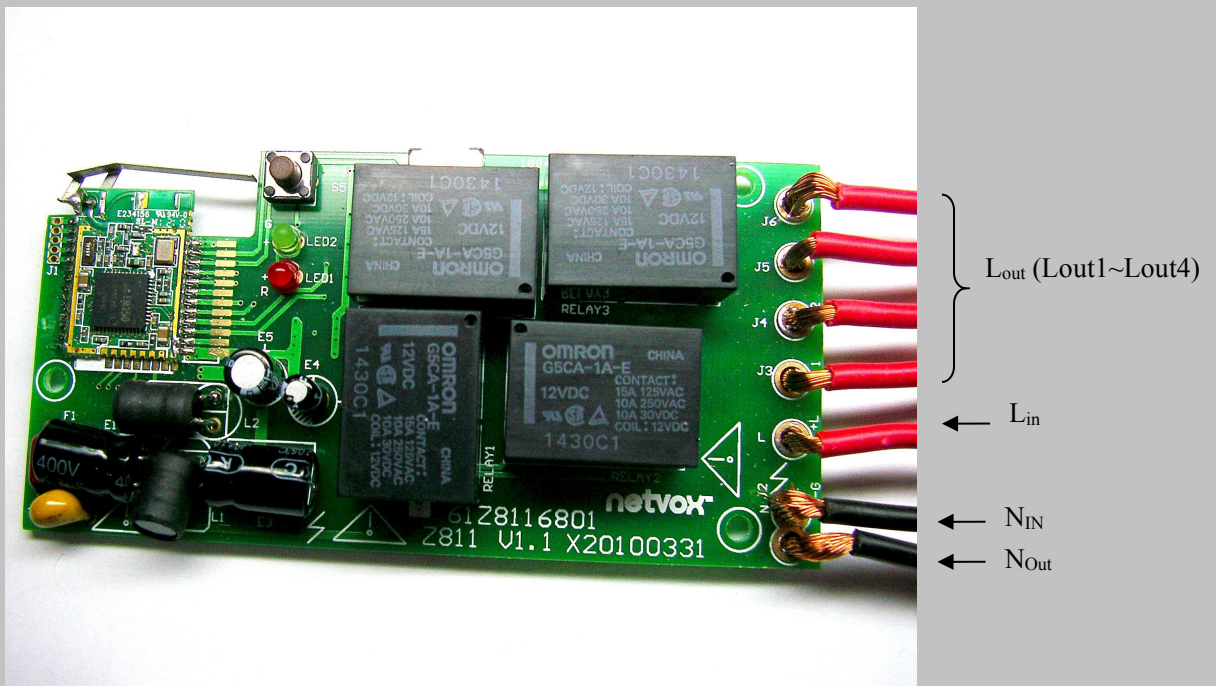
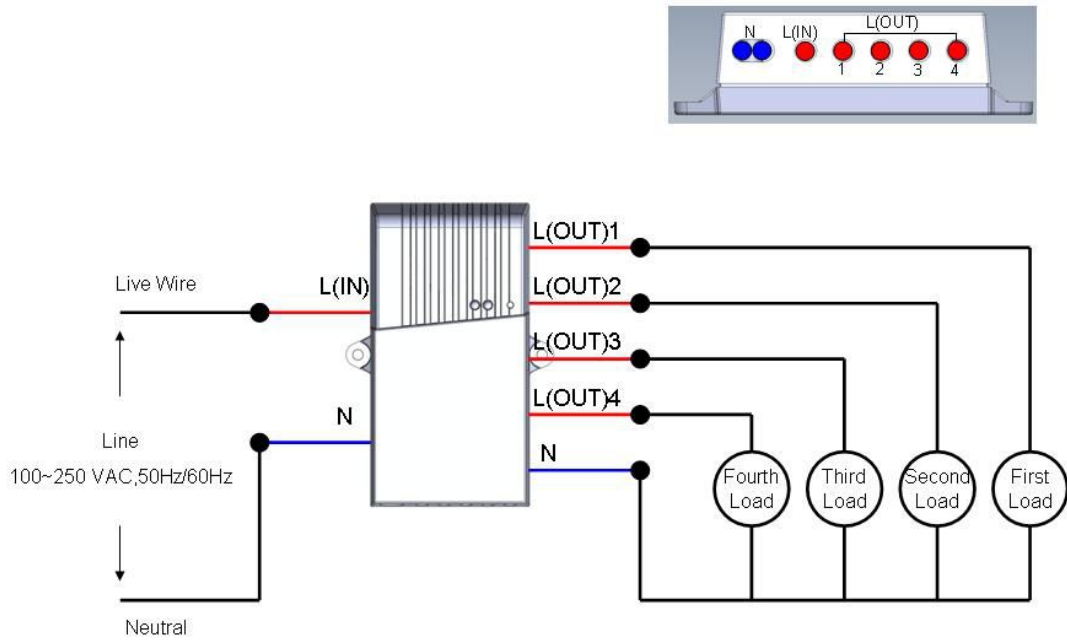
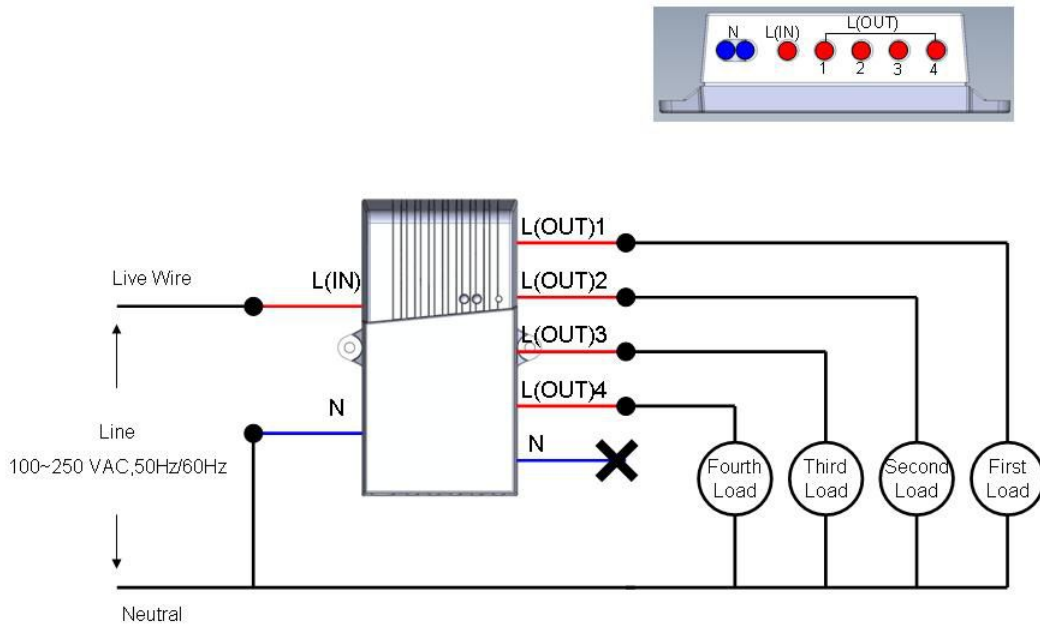


Figure 2: Z811 cabling configuration

Z811 Wiring Diagram 1 :



Z811 Wiring Diagram 2 :



Step 2. Device pairing (binding)

To wirelessly control Z811, it is required to pair with ZigBee enabled on/off/toggle remote controller. There are a total of 4 Lout which can be individually controlled and so you will pair each Lout individually to a wireless controller .If you do not wish to control Z811 with a remote, you may skip this step and go to [How Z811 is controlled](#).

Operation:

Step 1. Hold press the **binding key for 3 seconds** would force the device to enter binding mode; the indicator flash once to indicate **binding mode** enabled then release the key. It will be enabled for 5 seconds only.

Step 2. Before 5 seconds elapsed, short press the binding key n times for n^{th} Lout pairing. You will see one flash on the status indicator for each key press. When 5 seconds elapsed, the device will sent binding request to the air.

Step 3. Now do the same on the controller device to exchange binding. (*Refer to the controller device user manual for binding procedure*)

In a few seconds if pairing is successful, the controller should be able to control the output on Z811 where binding is applied.

Example: Pair a controller device to Lout2

After enabled the **binding mode**, short press the binding key twice and you will see the indicator flash once on each key press. The device sends out binding request to the air and wait for the controller device to exchange binding.

How Z811 is controlled

Via Wireless control

When the device has successfully joined to the network and paired with a remote controller the device is ready to be used. Each individual Lout should responds to “ON”, “OFF”, “Toggle” control commands from a paired ZigBee wireless controller described in Step 2 in the previous page.

Via Mechanical switch control

The AC power input **Lin** can be connected to a mechanical On/Off switch to apply operation described in the following. There are A mode and B mode output switch operations. Mode switch is given in Figure 1.

A mode is a Lout1 to Lout4 connection selection mode. When Z811 is operated under this mode, as the user switches ON and OFF then ON again in 3 seconds, Z811 switches from one Lout to the next -switching between outputs in order.

B mode is an output incrementing mode. Under **B mode** as the user turns ON and OFF then ON again and repeat this would eventually turns all the outputs *ON* -Increasing lighting effect.

Z811 remembers the AC Output status before the power outage. At the power recovery it restores to the previous output condition.

Permit other device to join

Z811 is featured to be a router in the network. It permits join other devices to the network. By default the router device Z811 does not allow permit-to-join function in normal operation to protect the network from unexpected or unauthorized join attempt. You will need to open up the permit-join on Z811 to allow new devices (a router or an end device) to join.

Z811 is capable of holding 6 routers and 14 end devices.

Operation:

Step 1: Short press the binding key once.

Step 2: The permit join is now enabled for 60 seconds and the network indicator will flash 60 times.

Z811 waits the new device to join automatically. Please note that the maximum waiting time to join is 60 seconds. Repeat the process if you missed the 60 seconds period.

Restore to factory setting

Z811 is capable of storing and saving includes network routing information. If you wish to remove Z811 from the network and join to a new network, you would need to clear the setting by simply reset the device to restore to the factory setting.

Operation:

Step 1. Hold press the binding key for 15 seconds to enter **reset mode**. During the 15 seconds there will be 3 timely flashes. After 3 flashes, meaning 15 seconds has elapsed then release the key.

Step 2. Short press once again to restore.

If restore to factory setting is **successful**, the indicator flashes quickly. Z811 will soon reboot. After reboot the device enters network search to join the device to the network described in the [Network Association](#) section.

Clusters of Home Automation for Z811

Home Automation device feature is defined by the endpoint which contains functional clusters. Table 1 lists clusters for the endpoint of Z811.

Table 1: clusters for the 3 endpoints of Z811

Cluster ID: On/Off Light (0100)	
End Point(s): 0x01, 0x02, 0x03, 0x04	
Server side	Client side
Basic (0x0000)	<i>None</i>
Identify (0x0003)	
Group (0x0004)	
Scene (0x0005)	
On/Off (0x0006)	
Commissioning (0x0015)	

Attributes of the Basic Cluster 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	0X0C	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	0X0D	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	Z811E2R	O
0x0006	<i>DateCode</i>	Character	0 – 16	Read only	2012-12-17	O

		string	bytes			
0x0007	<i>PowerSource</i>	8-bit Enumeration	0x00 – 0xff	Read only	0X01	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

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 may cause poor connections and may keep the device from function properly.