User Manual
Power Switch Unit
Model: Z805B

Energy Consumption Monitoring Series

For Home Automation Network

Power Switch Unit

Z805B

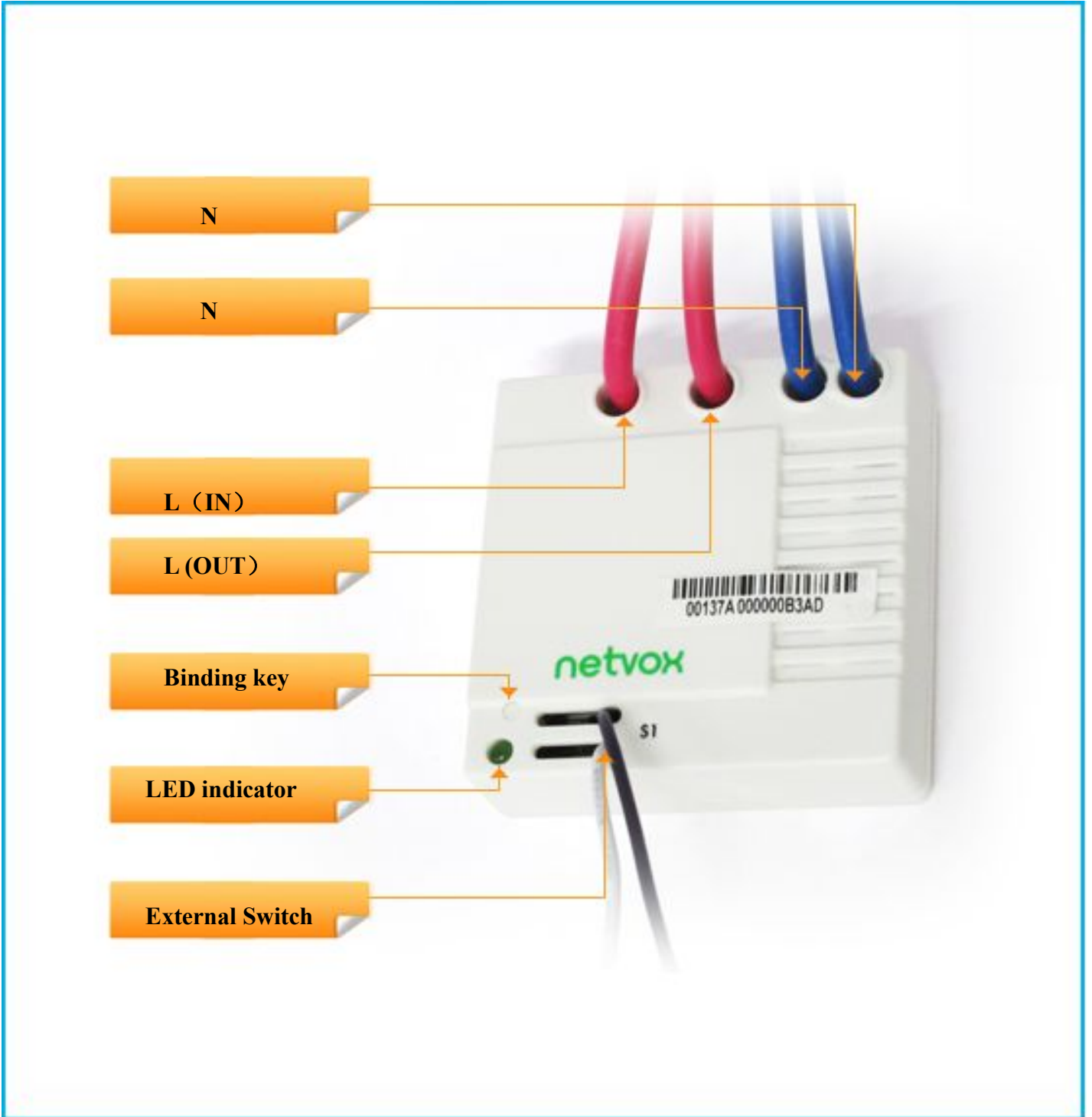| N |
| N |
| L（IN） |
| L（OUT） |
| Binding key |
| LED indicator |
| External Switch |

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netvox

S1

Figure 1: Z805B

Introduction

Z805B is a wireless AC power switch device with power/energy/current/voltage consumption monitoring feature. In the network, Z805B functions as a router device in the network which permit join other devices to the network. The device can be paired with a ZigBee enabled on/off remote device to control. Netvox has its proprietary energy management system such as ZiG-BUTLER software to view power or current consumption.

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

✓ Resistive load: 15A/250VAC, 400W

✓ Inductive load: 1½ HP (Horsepower) @240VAC

✓ Up to 190 meters non-obstacle wireless distance

✓ Simple operation and device configuration

✓ Consumption monitoring range 125mA to 15A, ±1% measurement tolerance.

Ambient	
Operating Temp	-10℃~50℃
Operating Humidity	5%～85%RH
Storage Temp.	-40℃~85℃

Setting up the Z805B and network

Setting Up Summary

(1) Startup and network association

Note: when successfully joined, we strongly suggest you to allow 1 minute performing self calibration on the meter before it is ready to take load. This is particular important for correct reading.

(2) Pair the device with other device where applicable (i.e. bind it with a ZigBee switch for wireless control).

(3) When it is bind with a controlling device it is then ready to be used.

(4) Power/current consumption monitoring

Step 1. Startup and Network Association

To allow Z805B 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 Z805B make sure it is within the wireless coverage distance (~190 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 Z805B will join to the network through it; then give power to Z805B 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

Operation:

Step 1: Make sure you have open up permit-join function (valid for 60 seconds) of a coordinator or a router

Step 2: Now wire the AC cable of Z805B to the AC source to power it up. Z805B device will start to search for the network within reach.

Step 3: When the device found the network, the LED indicator on the Z805B will flash. A non-flashing solid light indicates successful join otherwise the indicator stays dark.

How to wire the device

Please go to Power Cable Installation section.

Step 2. Device pairing (binding)

Z805B can be bound with a ZigBee enabled Home Automation *ON/OFF* switch -Netvox Z501, for wirelessly control within the network coverage area.

Pairing operation:

1. On Z805B, long press the binding key for **3 seconds**. You should see the LED flash once then release the key.
2. Likewise, do the same on the control switch to exchange binding according to the instructions of that device.

When pairing is successful the LED indicator on Z805B flashes 5 times then turn solid lit, otherwise it flashes 10 times indicating pairing unsuccessful.

Clear pairing setting: You may remove the pairing between the two or more devices. *Unbinding procedure is exactly the same as binding operation. When you repeat the binding operation, the two devices will remove the binding information stored.*

How to use Z805B

Wireless control Z805B device

A switch control device such as Netvox Z501 remote controller paired with Z805B may send *ON* or *OFF* command, Z805B would respond to either turn *ON* or *OFF* accordingly.

Manual switch

Please refer to installing an external switch section of the manual.

Power Consumption Reporting

When the load is attached to the device, the embedded meter reads the supplied current drawn overtime. Z805B reports the readings to a paired target device normally are an in-home display or consumption data logger. Ensure that you go through consumption reporting and configure reporting time interval described in ZiG-BUTLER page otherwise Z805B will not sent consumption reading. Z805B can report the consumption reading to Netvox's ZiG-BUTLER or to any 3rd party in-home display.

Power drawn overtime is measured. Current (unit mA), Voltage (unit V), Power (unit W) and Energy (unit Wh).

Permit other device to join

Z805B is featured to be a router in the network. It permits join other devices to the network. By default the router device Z805B does not allow permit-to-join function in a normal operation to protect the network from unexpected or unauthorized join attempt. You will need to open up the permit-join on Z805B to allow new devices (a router or an end device) to join.

Operation:
1. On Z805B, short press the binding key once
2. The permit join is now enabled for 60 seconds and the indicator light will blink for 60 times.
3. Z805B 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

Z805B is capable of storing and saving includes network routing information. If you wish to remove Z805B 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.

Operation:

1. Hold press the binding key for more than 15 seconds until you see the indicator give 4 timely flashes (flashes twice for the first, once on the 3rd second, and once on the 10th second) then the indicator will start flash quickly for 20 seconds. You may release the key.

Now the device has restored to the factory setting.

2. Within this 20 seconds, press the binding key again to force device reboot. Soon the device will enter network search mode to attempt to join to a network. (Refer to Network Association section of the manual)

Overload Protection

When load surpasses 20A, less than 30 seconds Z805 will switch off current supply.
When load is between 18A to 20A, less than 60 seconds the current will be switched off.
When load is between 16A to 18A, less than 120 seconds the current will be switched off.

Summary of Key function and corresponding display

Function	Key & Display
Restore to factory setting	Hold press binding key more than 15s 4 timely flashes. When the LED flash becomes quickly release the, press again to reboot the device.
Permit Join	Short press binding key once. Flashes 60 times in 60 seconds.
Device Pairing	Hold press binding key 3s. Flash once. Flash 5 times: successful Flashes quickly 10 times unsuccessful

Power Cable Installation

From Figure 1, there are 2 neutral wires. In real current circuit, these 2 neutral wires are actually one. So you may see it as depicted in Figure 2. We provide an extra neutral wire for your installation convenience. Load wiring schematic is shown in Figure 3 and 4.
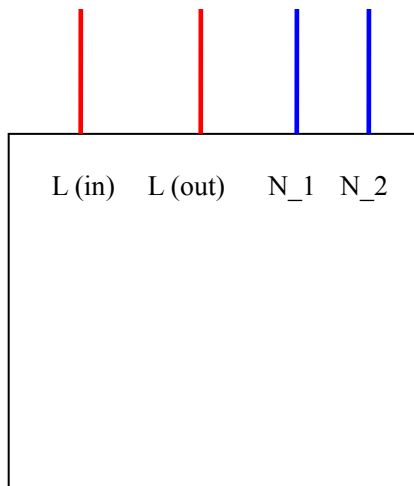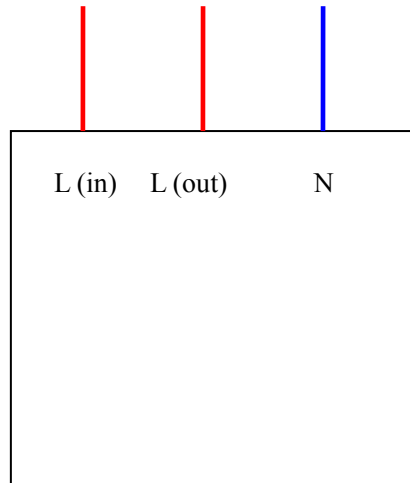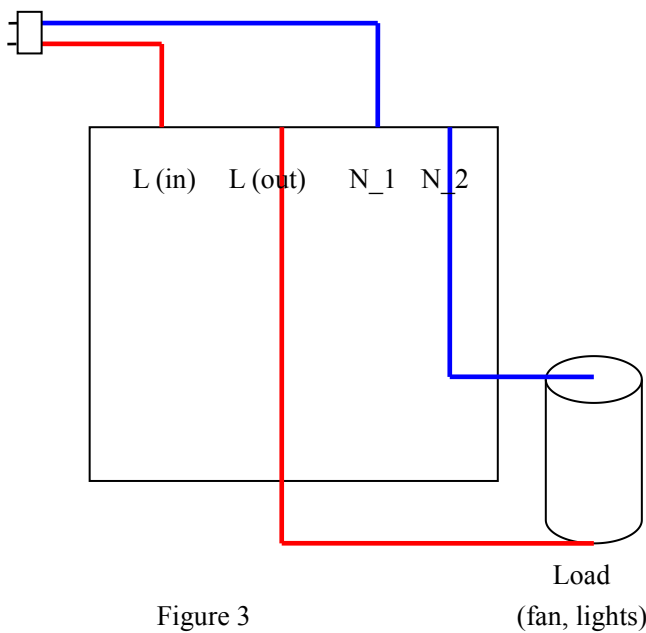
L (in)   L (out)   N_1   N_2

Figure 1

L (in)   L (out)   N

Figure 2

AC input plug
Or wiring

L (in)   L (out)   N_1   N_2

Figure 3

Load
(fan, lights)

or

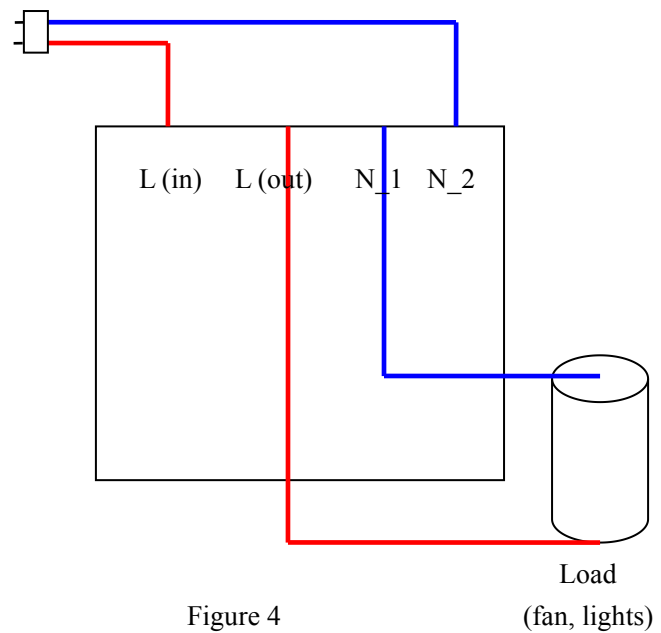AC input plug
Or wiring

L (in)   L (out)   N_1   N_2

Figure 4

Load
(fan, lights)

Installing an External Switch

Other than being a wireless power switch, Z805B is given external switch connectors to enable conventional switch to be attached. Choose a normally open switch to connect.

You may use any range of current rating of the switch, as the switch cable does not run load current but switch signal change.

We strongly suggest you to disconnect power source before connecting the external switch.

Clusters of Home Automation for Z805B

Home Automation device feature is defined by the endpoint which contains functional clusters. Table 1 lists clusters for the endpoint of Z805B

Table 1: clusters for the endpoint of Z805B

Device ID: Mains Power Outlet 0x0009 EndPoint: 0x0A	
Server side	**Client side**
Basic (0x0000)	*None*
Group (0x0004)	
Identify (0x0003)	
Scene (0x0005)	
On/Off (0x0006)	
Commission（0x0015）	
Meter (0x0702) *Netvox proprietary cluster*	

Attributes of the Basic Information

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*ZCLVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x03	M
0x0001	*ApplicationVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x0B	O
0x0002	*StackVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2D	O
0x0003	*HWVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x01	O
0x0004	*ManufacturerName*	Character string	0 – 32 bytes	Read only	netvox	O
0x0005	*ModelIdentifier*	Character string	0 – 32 bytes	Read only	Z805BE3R	O

0x0006	DateCode	Character string	0 – 16 bytes	Read only	20121015	O
0x0007	PowerSource	8-bit Enumeration	0x00 – 0xff	Read only	0x01	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

Troubleshooting

(1) I found that power outlet Z805B is not functioning.
We have done the paring to a wireless control device and there is no power connection for the appliances.

Please use the method bellow to verify:

Test 1. Ensure that Z805B can receive command:
Operate the mechanical switch of Z805B and see if the load attached can be turned on and off.

Test 2. Ensure that Z805B is in the network:
Enable permit join on other router device and see if Z805B LED indicator is also flashing which will last for 60 seconds together like other routers do. This result implied that Z805B is within the network and receives command from the network no problem. (How to enable permit join, please refer to any ZigBee router device for such feature).

Test 3. If test 1 and 2 items are found working, then what was left is device pairing between Z805B and the control device. Please refer to Step 2 in the beginning of the manual. Please keep in mind that when device pairing is done twice will actually clear pairing setting instead.

If **Test 2** item isn't working, please restore Z805B to factory setting then associate Z805B to the network again. Then perform device pairing.
If the problem persists, we would conclude that the device is faulty. Please inform us for ship back procedure.

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.

Important Notice