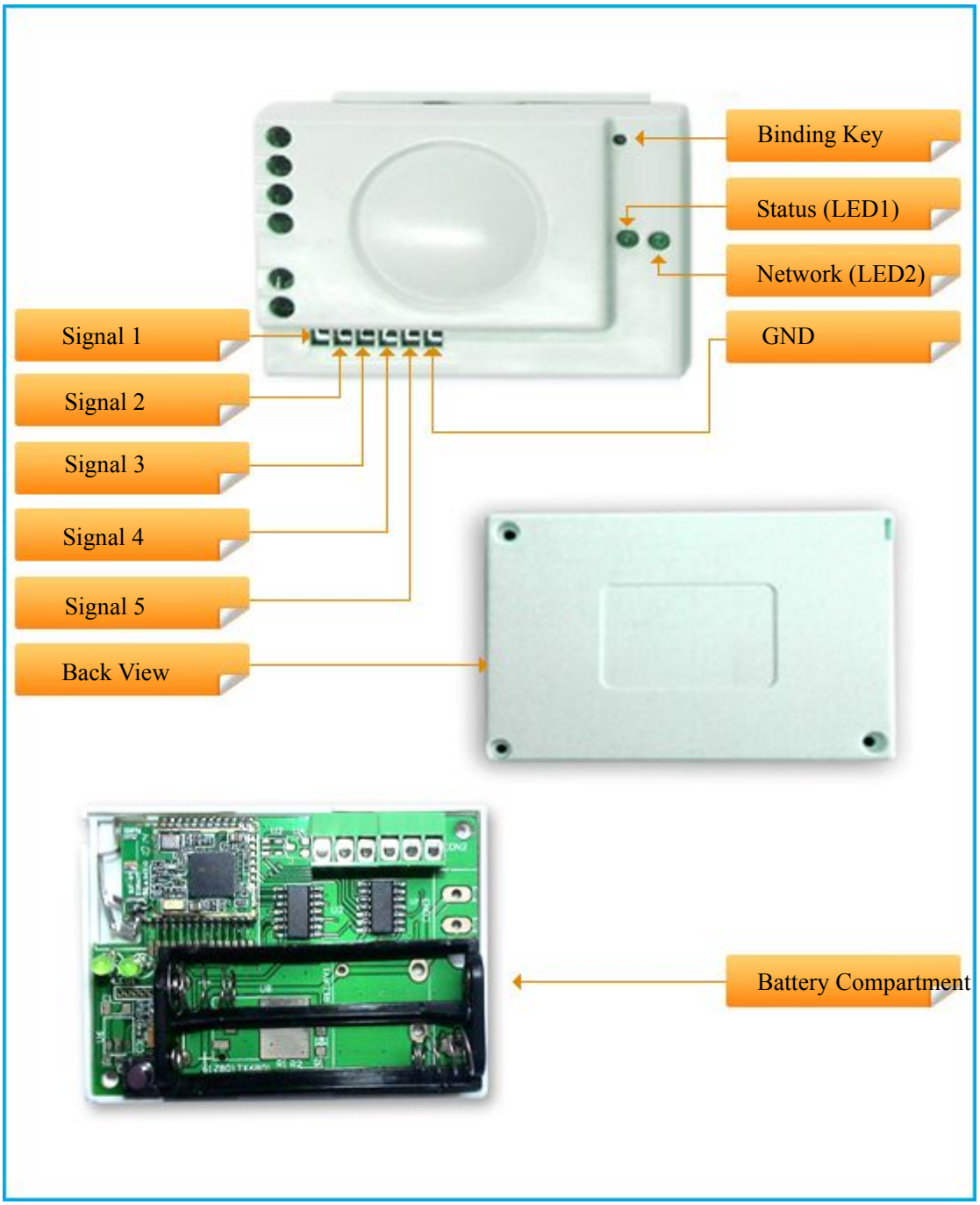
User Manual
Pulse Signal Detector

Model: Z801TXB

Compatible with ZigBee Home Automation Profile

201040210
FW V3.1
HW V4.3/V4.4

Model: Z801TXB



Introduction

NETVOX Z801TXB is a alarm event reporting device. It acts as an **end device** in the ZigBee Home Automation Profile network. It allows you to attach **up to five security zone sensors**. When signal from the sensor is detected the device sends a warning message to its enrolled security center (CIE device) in the network to notify the user. To know more about CIE device please consult your supplier.

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

- ✓ IEEE 802.15.4 compliant
- ✓ 2.4GHz ISM band (total 16 channels)
- ✓ Either 5-12V DC power supplied or 3V battery powered
- ✓ Power consumption: 35mA
- ✓ Standby consumption: 13uA
- ✓ Built-in metal antenna
- ✓ Transmit up to 183 meters in radius range @ optimum condition
- ✓ Simple setup and configuration

Setting up the Z801TXB and network

Here are the summarized steps

(1) Startup and network association
(2) Enroll Z801TXB to a security central (CIE).
(4) It is ready to be used.

Step 1. Startup and Network Association

To allow Z801TXB 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 Z801TXB make sure it is within the wireless coverage distance (~70 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 Z801TXB will join to the network through it then give power to Z801TXB 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*

Network association operation:
Step 1: Make sure you have opened up permit-join function (valid for 60 seconds) of a coordinator or a router.

Step 2: Give power to Z801TXB device (refer to How to power up the device)
The device will start to search for the network within reach.

Step 3: The network status indicator on the Z801TXB will **flash 5 times** when it finds the network otherwise the indicator stays unchanged. If it failed to join, press binding key or power cycle the device for another join attempt.

Notes:
a. By default the network does not allow any devices to join, it is done this way to prevent any potential unauthorized device join attempt. Make sure Z801TXB must be within the coverage area. You must enable permit join feature on a router or a coordinator already in the network so that Z801TXB is permitted to join when the channel is automatically searched.
b. On how to enable permit-join feature please refer to the coordinator or the router user manual.

How to power up the device

The device comes in two types of supplied voltage, 3VDC and 5VDC.

For 3VDC device, you will use 2 AAA size batteries. Open up the battery compartment and insert the battery.

For 5VDC device, you will use a 5VDC power supply connection. Fix the 5VDC wire into the +5V connection port.

Step 2. Automatic Zone Registration (enrollment)

Soon after the network join, the next step is to enroll itself into security system to validate zone alarm feature to report an event. 10 seconds following successful network join, the device will do auto registration to CIE system. So make sure you have at least one available CIE device in the network.

Operation: If CIE device registration is **successful**, it **flashes 6 times**. If any of the 5 signals **failed** to enroll, it **flashes 2 times**.

Applying manual enrollment when automatic enrolment failed: Short press binding key for the status indicator **flashes once**. The enrollment process will start.

Assigning Z801TXB to a preferred CIE system

Z801TXB can be manually enrolled to a preferred CIE device via external application software such as Netvox's ZiG-BUTLER PC based software or any other 3rd party device. For ZiG-BUTLER user, please refer to ZiG-BUTLER section in this manual.

If registration is **successful**, it **flashes 6 times**.
If registration table is **full** and unable to enroll, it **flashes 4 times**.
If CIE is not existed and **failed** to enroll, it **flashes 2 times**.

How to use

When the device has successfully joined to the network and has enrolled to a CIE device, the device is ready to be used.
When Z801TXB detects signal from the sensor head or heads, it will trigger an event reporting message to the CIE device for a corresponding alarm to notify the user.

Overcoming a sleeping device

The Z801TXB is a battery powered device and is designed to quickly enter sleep mode when idle to save power. Sometimes during system setup you would want to retrieve information (i.e. IEEE address, short address) from the device so you need to press key to allow the device to enter wake mode to stay connected.

Operation:
Hold press binding key for 3 seconds **status indicator flashes once** and **network indicator flashes 5 times**. The device should automatically announce information to the air. The device would stay awake for a while but short.

Restore to factory setting

Z801TXB is capable of storing and saving includes network routing information. If you wish to remove Z801TXB from the network, you would need to clear it to join to a new network by simply reset the device to restore to the factory setting.

Operation:
1. Remove the power then hold on to the binding key.
   Note: make sure that the power is fully drained: leave the power out for 30 seconds or press the binding key twice for fast power release.
2. Press and hold the binding key and then give power to Z801TXB. Release the key. You will see the status LED flashes quickly indicating restore to factory setting is successful.

Now if you wish Z801TXB to join to a new network please power cycle the device again to put the device into search for a network mode (refer to network association in this manual).

Battery disposal

This device uses AAA size battery. When the battery is bellowing 2.4V DC, the device will not work and the status indicator will steadily flash to notify the user to replace it.

Warning: Do not cast battery into the fire. The battery may be explosive and may cause injuries.

Installation

Sensor connection

Connect the sensor cable into the signal input ports. One sensor to one signal port configuration. Also connect the sensor's negative cable to the common ground port.

Since Z801TXB can be triggered by signal change, Z801TXB sensor selection must be those that give either open or close circuit configuration.

You may program the device so that it may trigger either by an open or a close state of the sensor at the time of device factory default.

Operation:

To program Z801TXB to trigger the alarm by a close circuit sensor type:

1. Restored the device to factory default setting. (Refer to restore device to factory setting section in this manual)
2. Select a preferred S port and leave it as an open circuit.
3. Then power cycle the device.

   The device regards open circuit as a normal status and therefore will not trigger the alarm.

To program Z801TXB to trigger the alarm by an open circuit sensor type:

1. Restored the device to factory default setting. (Refer to restore device to factory setting section in this manual)
2. Select a preferred S port and connect the sensor in such a way that it is a close circuit.
3. Then power cycle the device.

   The device regards a short circuit as a normal status and therefore will not trigger the alarm.

Potential Device Customizing

Depends on which two model of Z801TXB purchased. It comes with either 3 or 5 sensor connection ports. To specify ZigBee zone type given in HA Profile for your needs, at your next purchase order Netvox offers to re-write the zone type for each of these ports. Write to us and list out which S port to be which of the 12 available HA Profile zone types in the table bellow. Note that if you have only 3 ports then you are only to have 3 zone types. One zone type per each port. Same thing goes to 5 ports Z801TXB.

0x00: EMBER_ZCL_IAS_ZONE_TYPE_STANDARD_CIE = 0x0000, 0x01: EMBER_ZCL_IAS_ZONE_TYPE_MOTION_SENSOR = 0x000D, 0x02: EMBER_ZCL_IAS_ZONE_TYPE_CONTACT_SWITCH = 0x0015, 0x03: EMBER_ZCL_IAS_ZONE_TYPE_FIRE_SENSOR = 0x0028, 0x04: EMBER_ZCL_IAS_ZONE_TYPE_WATER_SENSOR = 0x002A, 0x05: EMBER_ZCL_IAS_ZONE_TYPE_GAS_SENSOR = 0x002B, 0x06: EMBER_ZCL_IAS_ZONE_TYPE_PERSONAL_EMERGENCY_DEVICE = 0x002C, 0x07: EMBER_ZCL_IAS_ZONE_TYPE_VIBRATION_MOVEMENT_SENSOR = 0x002D, 0x08: EMBER_ZCL_IAS_ZONE_TYPE_REMOTE_CONTROL = 0x010F, 0x09: EMBER_ZCL_IAS_ZONE_TYPE_KEY_FOB = 0x0115, 0x0A: EMBER_ZCL_IAS_ZONE_TYPE_KEYPAD = 0x021D, 0x0B: EMBER_ZCL_IAS_ZONE_TYPE_STANDARD_WARNING_DEVICE = 0x0225

By default, all the ports are shipped as
0x02: EMBER_ZCL_IAS_ZONE_TYPE_CONTACT_SWITCH = 0x0015

Clusters of Home Automation for Z801TXB

Home Automation device feature is defined by the endpoint which contains functional clusters. Table 1 lists clusters for the endpoint of Z801TXB

1) End Point(s)： 0x01、0x02、 0x03、 0x04、 0x05
2) Device ID：IAS Zone（0x0402）
3) EndPoint Cluster ID

Cluster ID for Z801TXB	
Server side	**Client side**
EP: 0x01 (Device ID: 0x0402)	
IAS Zone(0x0500)	None
Basic(0x0000)	
Identify(0x0003)	
Optional	
Power configuration(0x0001)	None

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	0x1F	O
0x0002	*StackVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2F	O
0x0003	*HWVersion*	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2B	O
0x0004	*ManufacturerName*	Character string	0 – 32 bytes	Read only	netvox	O
0x0005	*ModelIdentifier*	Character	0 – 32	Read	Z801TXBE3E	O

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
		string	bytes	only	D	
0x0006	*DateCode*	Character string	0 – 16 bytes	Read only	20140210	O
0x0007	*PowerSource*	8-bit Enumeration	0x00 – 0xff	Read only	03	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

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.