

User Manual

Combined Interface

Model: ZL01A

FW V4.4

HW V1.3

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1. Introduction

Netvox ZL01A, the ZigBee gateway, acts as a Coordinator or a Router Device in ZigBee network. It is designed to interface the RS-232 interfaces with ZigBee network. There are two transmission modes: the data-transmission mode and the command-transmission mode. Any terminal is able to send data wirelessly via ZL01A under the data-transmission mode. Under the command-transmission mode, it is able to collect network information using ZigBee 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



3. Specification

- Fully IEEE 802.15.4 compliant
- Utilizes 2.4GHz ISM band; up to 16 channels
- Power supply: 5V DC
- Up to 150 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.





5. Setting up ZL01A

5-1. Join the ZigBee Network

A. When ZL01A is a Coordinator.

It will establish a ZigBee network after powering on. The indicator will stay **ON** after the network is created successfully. Otherwise, the indicator will be **OFF**.

B. When ZL01A is a Router Device.

It will search for an existing ZigBee network and send a request to join the network automatically after powering on. While ZL01A is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, ZL01A will be permitted to join the network. The indicator will stay **ON** after it is joined successfully.

5-2. Permit-Join

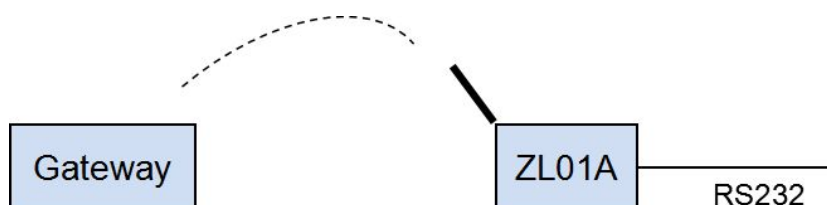
ZL01A is designed to work as a coordinator or a router. To allow other devices to join the ZigBee network, users could enable the Permit-Join feature using the tips:

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

5-3. Transparent Transmission Mode

ZL01A performs three transmission modes: mode 1, mode 2, gateway mode

(1) Transparent transmission mode 1:



Baud Rates which ZL01A supports: 115200bps, 57600bps, 38400bps, 28800bps, 19200bps, 9600bps, 4800bps, 2400bps, 1200bps. Default baud rate is 9600bps. If users would like to change baud rate, it must be done before leaving the factory or through Netvox OTA programming to modify.

Process: Send GetPollData Request command via Z206/Z103A/B USB dongle. SendDataPayload is the real data needed to be sent to ZL01A serial port. When ZL01A gets the command, it will get data from SendDataPayload and send it to target device via RS231 interface. When ZL01A receives the serial port data through RS232, it will fill the serial port data to RecDataPayload field according to the GetPollData response command and send it to the destination address by air.

Mode one requests to cooperate with Z206/Z207 and REST API document.

Wireless transparent transmission command:

GetPollData Request (PC Side ZU)

Cmd=0x0F21	Len=var	AddrMode	DstAddr	DstEndPoint	Cluster ID	SendDataPayload
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AddrMode – byte –indicates that the DstAddr is either 16 bits ShortAddress (Addrmode = 0x02) or 16 bits GroupAddress (Addrmode = 0x01)

DstAddr – 2 bytes –network address of the destination address.

DstEndpoint – byte – the destination EndPoint. represents the application endpoint the data.

Cluster ID – 2 byte –Netvox MIX ClusterID. (0E60)

SendDataPayload—var bytes—PayloadData Send From PC API(MAX=76bytes)

GetPollData Response (Sensor Side Module)

Cmd=0x1F21	Len=var	SrcAddr	SrcEndPoint	Cluster ID	RecDataPayload
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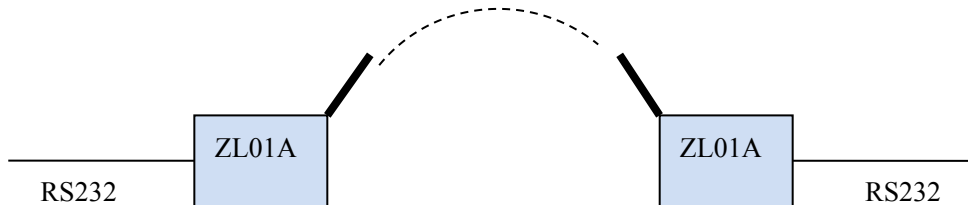
SrcAddr– 2 bytes –network address of the source address.

SrcEndPoint– byte – the source EndPoint. represents the application endpoint the data.

Cluster ID – 2 byte –Netvox MIX ClusterID.(0E60)

RecDataPayload—var bytes—PayloadData Rec From Sensor(MAX=76bytes)

(2) Transparent transmission mode 2:



ZL01A receives RS232 serial data, the original serial data is sent to the air in the form of broadcast, for example, data 010203 can be sent directly through the RS232 to ZL01A and it can pass data 010203 to the air.

ZL01A receives the air data, the original data will be sent directly to the serial port. For example, data 010203 is sent through RS232 of ZL01A to the air and let another ZL01A receives data and pass it through RS232 to the corresponding device.

(3) Gateway mode :

Sending data and receiving data are strictly following Netvox << Profile Standard Command.doc >> user manual.

(4) To switch the modes between mode 2 and gateway mode, please use below command format:

The command format is as following:

02	Cmd=0x0FFE	Len=0x11	Data	CRC
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Mode 2: Data is "www.netvox.com.cn" hexadecimal code. Send serial command "020FFE117777772E6E6574766F782E636F6D2E636ECB", when receiving the "021FFE0100E0" that it is successful to change to mode 2.

The Gateway mode: Data is "WWW.NETVOX.COM.CN" hexadecimal code. Send serial command "020FFE115757572E4E4554564F582E434F4D2E434ECB", when receiving the "021FFE0100E0" that it is successful to change to Gateway mode.

5-4. Restore to Factory Setting

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

- Step1. Power off ZL01A.
- Step2. Press and hold the *Permit-join Key*.
- Step3. Do not release the key and power on ZL01A to complete the restore.

6. Home Automation Clusters for ZL01A

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 ZL01A.

- 1.End Point(s) : 0x0A
- 2.Device ID : Combined Interface (0x0007)
- 3.EndPoint Cluster ID

Server side	Client side
Mandatory	
Basic(0x0000)	
Identify(0x0003)	
Commissioning(0x0015)	
Diagnostics(0x0B05)	
Optional	

This lists the attributes of the basic information.

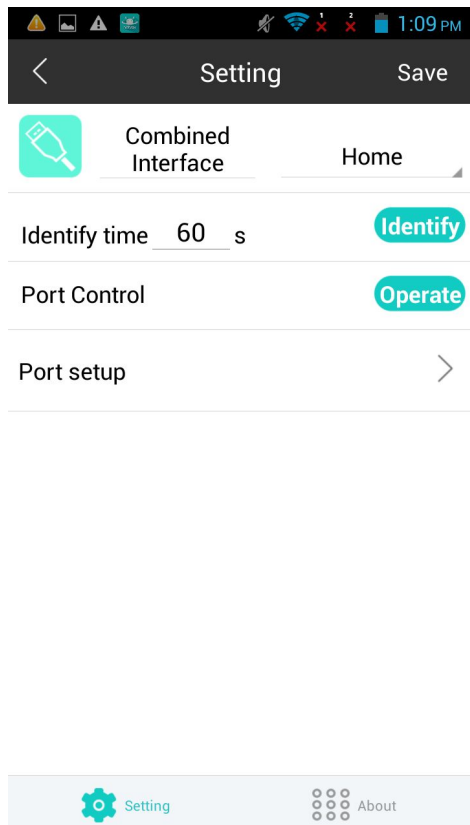
Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>ZCLVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x03	M
0x0001	<i>ApplicationVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x28	O
0x0002	<i>StackVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x33	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	ZL01AE3C/ ZL01AE3R	O
0x0006	<i>DateCode</i>	Character string	0 – 16 bytes	Read only	20130108	O
0x0007	<i>PowerSource</i>	8-bit Enumeration	0x00 – 0xff	Read only	0x04	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

7. Netvox APP Interface

1. After the device is added to the Netvox system, search for the IEEE address in the device management interface of the APP, select the combined interface, and the device has only one EP-0A as shown below:



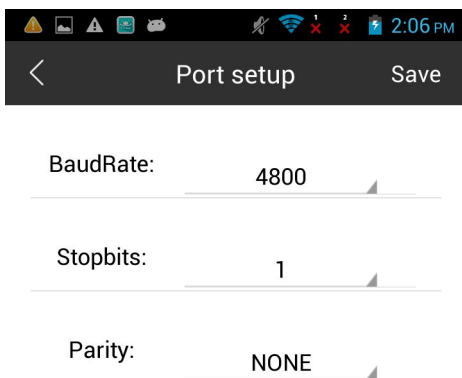
2. Select the device and it will enter the device's settings interface.



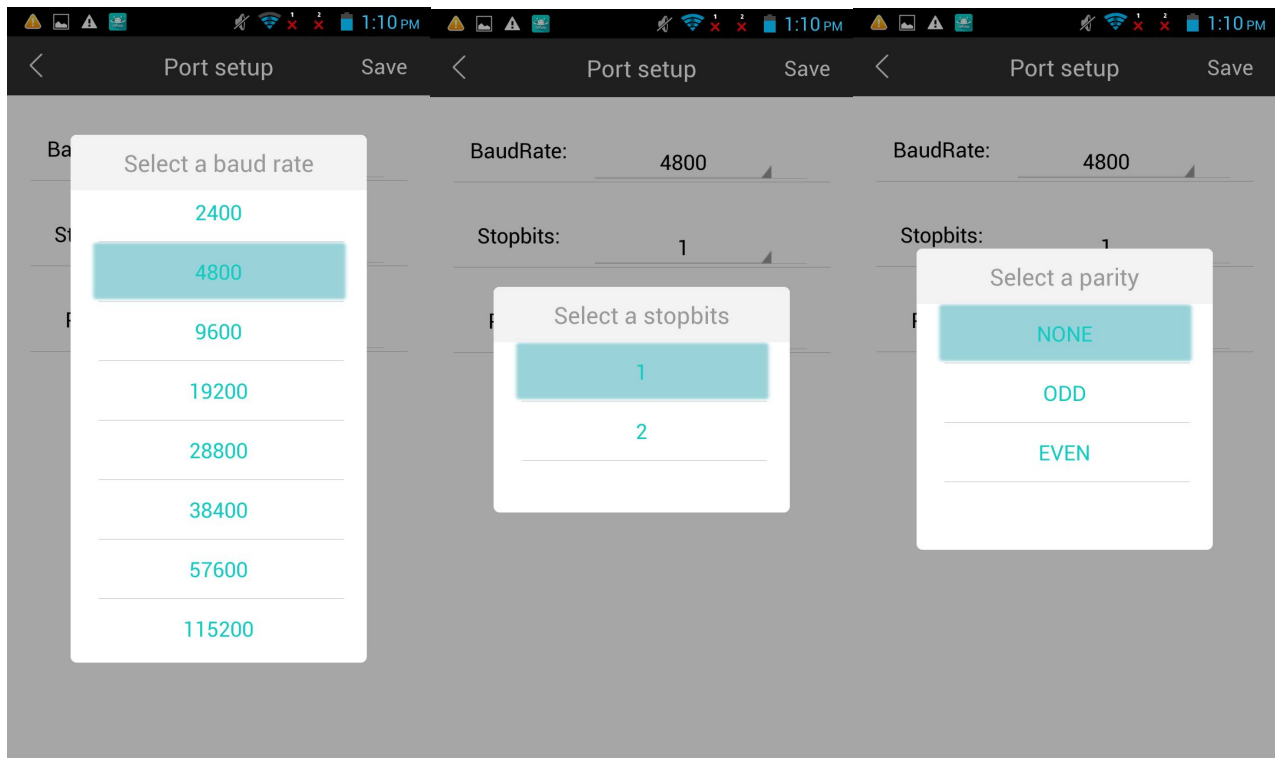
3. Click on about in the previous interface, the “About Device” screen will appear, and the device related information will be displayed.



4. Click Port setup, as shown below, you can set the baud rate, stop bit, parity bit.



5. Click on the setting item above and the following interface will appear.



8. Important Maintenance Instructions

Your device is a product of superior design and craftsmanship and should be used with care. The following suggestions will help you use the warranty service effectively.

- Keep the equipment dry. Rain, moisture, and various liquids or moisture may contain minerals that can corrode electronic circuits. In case the device is wet, please dry it completely.
- Do not use or store in dusty or dirty areas. This can damage its detachable parts and electronic components.
- Do not store in excessive heat. High temperatures can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store in excessive cold place. Otherwise, when the temperature rises to normal temperature, moisture will form inside, which will destroy the board.
- Do not throw, knock or shake the device. Rough handling of equipment can destroy internal circuit boards and delicate structures.
- Do not wash with strong chemicals, detergents or strong detergents.
- Do not apply with paint. Smudges can block debris in detachable parts and affect normal operation.
- Do not throw the battery into a fire to prevent the battery from exploding. Damaged batteries may also explode. All of the above suggestions apply equally to your device, battery and accessories. If any device is not working properly. Please take it to the nearest authorized service facility for repair.