

# **User Manual**

## **Combined Interface**

**Model: ZL01B**

**Firmware: V4.7**

**Hardware: V1.3**

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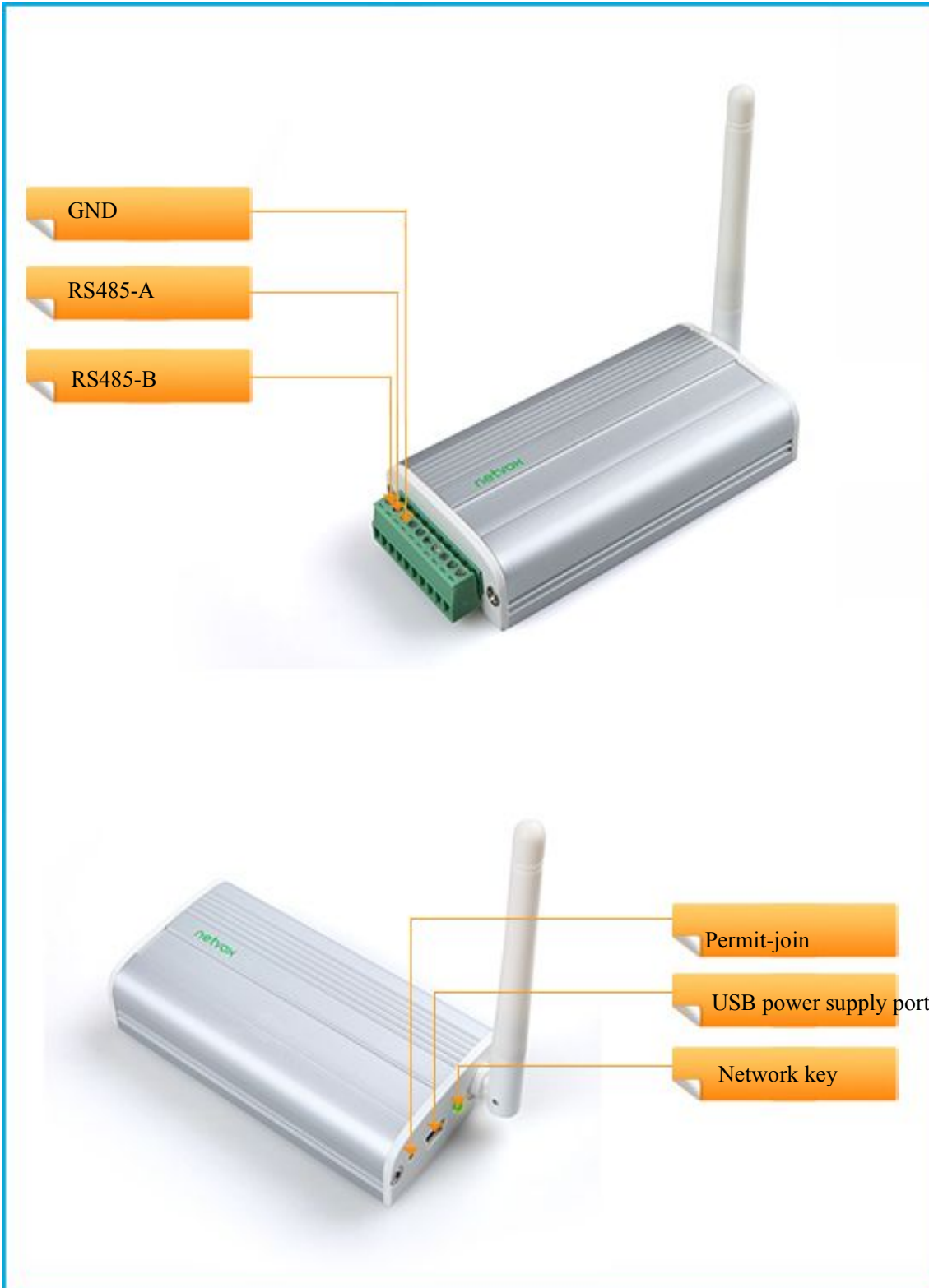
## 1. Introduction

Netvox ZL01B, the ZigBee gateway, acts as a Coordinator or a Router Device in ZigBee network. It is designed to interface the RS-485 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 ZL01B 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. Setting up ZL01B

#### 4-1. Join the ZigBee Network

A. When ZL01B 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 ZL01B 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 ZL01B is under the coverage from a coordinator or a router whose **permit-join feature is enabled**, ZL01B will be permitted to join the network. The indicator will stay **ON** after it is joined successfully.

#### 4-2. Permit-Join

ZL01B 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:

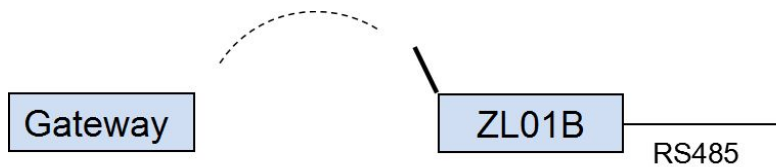
A. Press the *Permit-join Key* once to enable the Permit-Join feature. The indicator will flash once per second.

B. The default Permit-Join period of time is 60 seconds.

#### 4-3. Transparent Transmission Mode

ZL01B performs three transmission modes: mode 1, mode 2, gateway mode

(1) Transparent transmission mode 1:



Baud Rates which ZL01B 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 ZL01B serial port. When ZL01B gets the command, it will get data from SendDataPayload and send it to target device via RS485 interface. When ZL01B receives the serial port data through RS485, 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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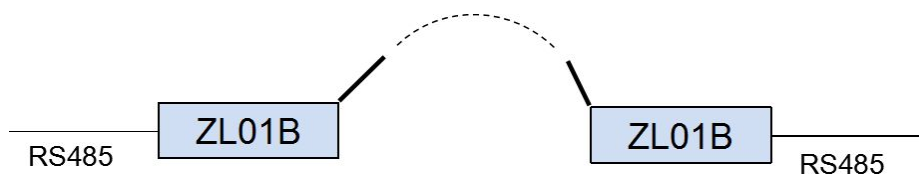
SrcAddr – 2 bytes – network address of the source address.

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:



ZL01B receives RS485 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 RS485 to ZL01B and it can pass data 010203 to the air.

ZL01B receives the air data, the original data will be sent directly to the serial port. For example, data 010203 is sent through RS485 of ZL01B to the air and let another ZL01B receive data and pass it through RS485 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 follow 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.

#### 4-4. Restore to Factory Setting

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

- Step1. Power off ZL01B.
- Step2. Press and hold the *Permit-join Key*.
- Step3. Do not release the key and power on ZL01B to complete the restore.

### 5. Home Automation Clusters for ZL01B

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 ZL01B.

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

<b>Server side</b>	<b>Client side</b>
<b>Mandatory</b>	

Basic(0x0000)	
Identify(0x0003)	
Commissioning(0x0015)	
Diagnostics(0x0B05)	
<b>Optional</b>	

This lists the attributes of the basic information.

<b>Identifier</b>	<b>Name</b>	<b>Type</b>	<b>Range</b>	<b>Access</b>	<b>Default</b>	<b>Mandatory / Optional</b>
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	ZL01BE3C/ ZL01BE3R	O
0x0006	<i>DateCode</i>	Character string	0 – 16 bytes	Read only	20131216	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



## 6. Netvox APP Interface

1. After the device is added to the Netvox system, the device information will appear on the device management interface of the APP. As shown in the figure below, the ZL01B device has one EP information.



2. Select ZL01B to enter the control interface, as shown below:



The identification button control part can make ZL01B enter the recognition state. If the screen is filled for 60s and then select the identification, ZL01B will enter the recognition state, flashing 60 times. Select the serial port parameter to read and modify the serial port related parameters. The following figure shows the current serial port configuration parameters of the device.



Select the baud rate, stop bit, parity bit of the interface to modify these parameters, as shown below:



Select the serial port operation part of the control interface to enter the serial port template page of the device, as shown below.



You can download the serial port template by selecting the download button shown in the red box in the upper right corner. As shown below:



Select the default heating device and enter the menred RS485 floor heating control interface.

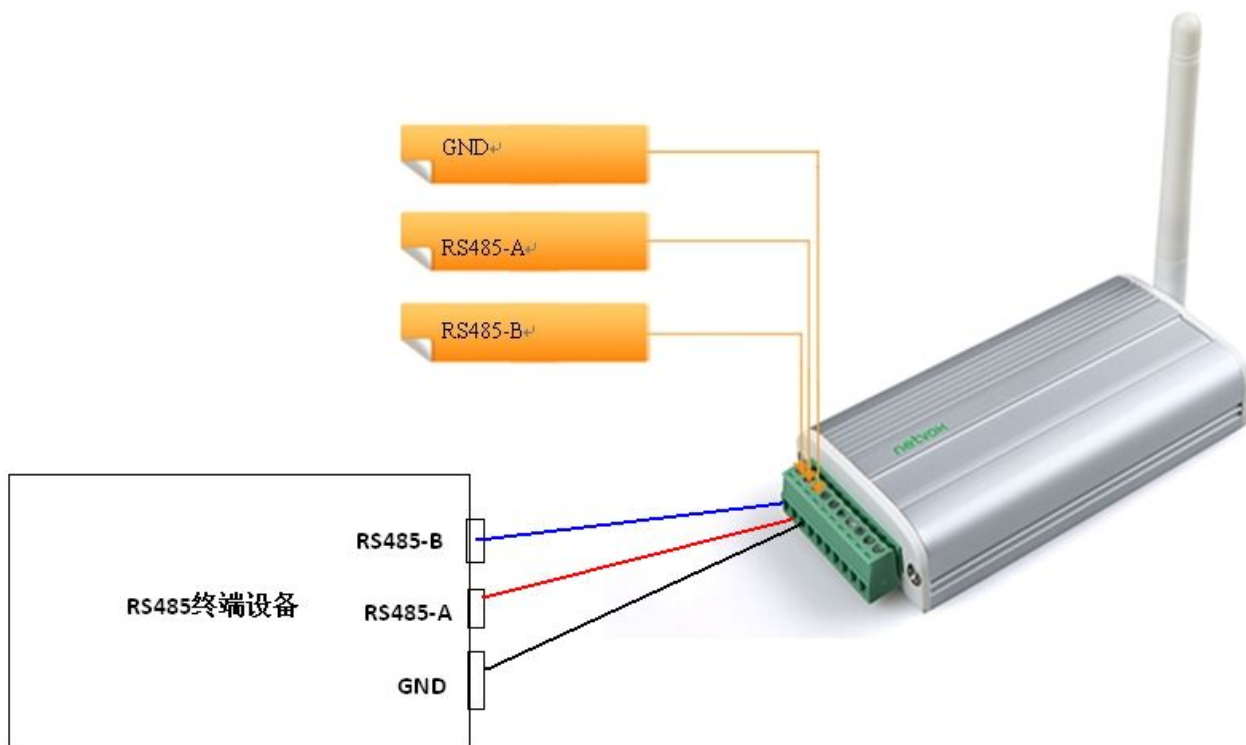


Through this interface, you can read the detection temperature of the menred LS6box; set the temperature and set the mode. For details on how to use the function, refer to the instruction manual of menred LS6Box.

## 7. Installation

How to connect the product to the terminal device:

### 1. Interfacing with RS485 terminal equipment



When connecting with the RS485 terminal device, only RS485-A is connected to the RS485-A interface of the docking device, RS485-B interface is connected to the RS485-B interface of the docking device, and GND is connected to the GND interface of the docking device. The GND interface, such as the docking device, does not have a GND interface.

For the RS485A and B line sequence of the RS485 terminal device, please refer to the product manual of the docking device.

### 2. Interfacing with computer equipment

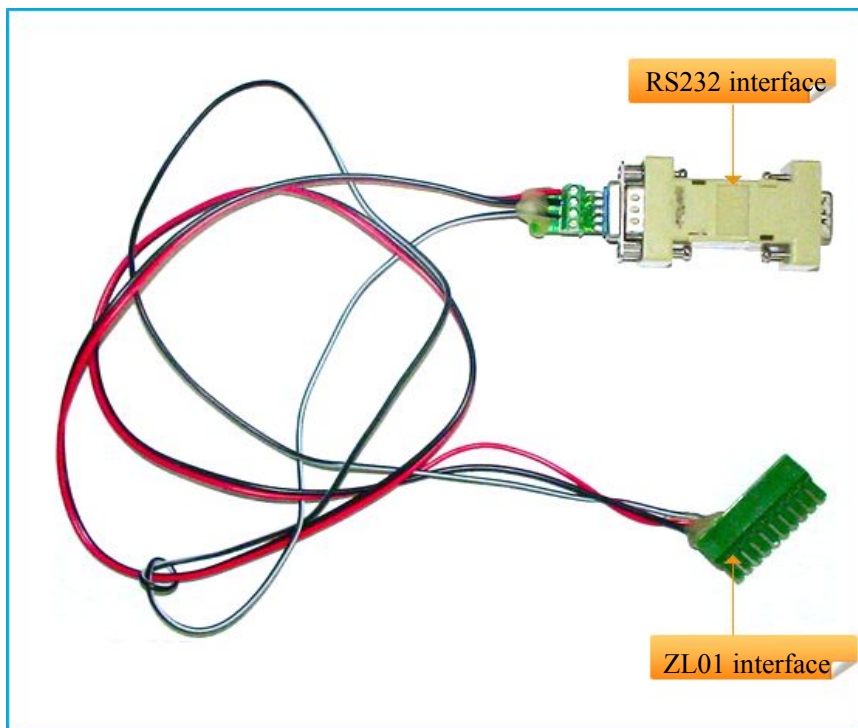


Figure 6-2. RS232 adapter cable



Figure 6-4 Terminal device interface

## 8. 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.