



ZigBee™-Combined Interface

User Manual

ZigBee Wireless COM Port

Model: ZL01F

ZL01F



Figure 1: ZL01F device

Introduction

NETVOX ZL01F functions as a router in the ZigBee™ network. It is suitable for user who wants to communicate between two serial COM's through ZigBee wireless network. Field application can be meter reading and data acquisition. To the serial COM terminals, this device should look as a straight through device and the wireless communication should be transparent to them.

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
- ✓ Standard USB power supply
- ✓ Up to 70 meters non-obstacle wireless distance
- ✓ Simple operation via 3rd party application software

Setting up the ZL01F and network

Setting Up Summary

- (1) Startup and network association
- (2) It is ready to be used.
- (3) Match with a consumption display device.

Step 1. Startup and Network Association

To allow ZL01F to function, it must first join to a ZigBee network. When it is given powered (refer to [How to power up ZL01F device](#)) it will automatically start searching for an existed network. So before you give power to ZL01F 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 from the network so that ZL01F will join to the network through it; then give power to ZL01F 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. First make sure you have **opened up permit-join function** (valid for 60 seconds) on a coordinator or a router which is in the network. You may also enable permit-join from ZiG-BUTLER. Refer to [Join the device into the network](#) section in ZiG-BUTLER.

Step 2. Now power on the ZL01F device (connect ZL01F to a standard USB power) to let it search automatically for the network within reach.

Step 3: if join successful the **indicator shows solid light**, otherwise the indicator will stay dark.

How to power up ZL01F device

ZL01F is powered from the standard USB port normally found on PC. Simply take the USB cable and plug one end to the PC or USB power supply and the other end which is mini USB to ZL01F. This would power up the device.

Permit other device to join

ZL01F is featured to be a router in the network. It permits other devices, such as another ZL01F, to join the network. In normal operation, by default the router device ZL01F does not permit any device to join to the network to protect the network from unexpected or unauthorized join attempt. You will need to open up the permit-join manually on ZL01F or on other router device to allow new devices (a router or an end device) to join.

Operation:

Step 1. Short press the permit-join key once or perform permit-join from ZiG-BUTLER software.

Step 2. You should see the indicator light blinks for 60 times. The permit join is now enabled only for 60 seconds.

Step 3. ZL01F 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

ZL01F is capable of storing and saving includes network routing information. If you wish to remove ZL01F 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. First remove the power then hold on to the **permit-join key**.

Step 2. While doing so, power up the device again to give power then release the key.

Step 3. If restore to factory setting is **successful, you should see the indicator light flashes quickly**. Now the device has restored to the factory setting.

Now if you wish to join to a new network please power cycle the device again to put the device into search network mode.

For Programmers only

How to send data through ZigBee commands

Communication Configuration

✓ **COM Port Baud rate is 9600bps**

Other available rates should be requested upon the time of purchase order as it is configured at the factory level: 115200bps, 57600bps, 38400bps, 28800bps, 19200bps, 9600bps, 4800bps, 2400bps, and 1200bps.

✓ **No parity, 8 data bits, 1 stop bit.**

Sent and Response Command

Sent data request

GetPollData Request (PC Side ZU)

Cmd=0x0F21	Len=var	AddrMode	DstAddr	DstEndPoint	Cluster ID	SendDataPayload
------------	---------	----------	---------	-------------	------------	-----------------

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 (0x0E60).

SendDataPayload—var bytes—PayloadData Send From PC API (MAX=32bytes)

Data request Response

GetPollData Response (Sensor Side Module)

Cmd=0x1F21	Len=var	SrcAddr	SrcEndPoint	Cluster ID	RecDataPayload
------------	---------	---------	-------------	------------	----------------

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=32bytes)

How to respond data request command and return data back to the source

You will need an USB dongle interface (Z103A or Z103B) to sent *GetPollData Request* command to the target ZL01F. The *SendDataPayload* is the actual data required by the COM port terminal of the targeted ZL01F.

Once ZL01F receives the request, the COM port terminal attached to the ZL01F reads data in the *SendDataPayload*. To return the data requested to the request source, the terminal should uses the *GetPollData Response* command to return *RecDataPayload* data with the size less than 32bytes.

Clusters of Home Automation for ZL01F

Home Automation device feature is defined by the endpoint which contains functional clusters. Table 1 lists clusters for the endpoint of ZL01F

Device ID: Combined Interface (0x0007)	
EndPoint: 0x0A	
Server side	Client side
Basic (0x0000)	
Identify (0x0003)	

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	0X1E	O
0x0002	<i>StackVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x2B	O
0x0003	<i>HWVersion</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0X0C	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	ZL01F	O
0x0006	<i>DateCode</i>	Character string	0 – 16 bytes	Read only	20111205	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

Attributes of the Identify Information

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>IdentifyTime</i>	Unsigned 16-bit integer	0x0000 – 0xffff	Read / write	0x0000	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.

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.