Zigbee1080A

User's Manual

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Contents

Chapter 1 Overview

ZIGBEE-1080A is a transparent dada transfer module, it can connect with the RS232/RS485 devices to compose Zigbee network. The module can work in the API (default) and AT mode, AT mode is applicable to dual couplet, that is, two zigbee modules are bound, and then they can only communicate with each other. API mode not only applies to dual couplet, but also applies to star and mesh network, and it can better meet the customer needs.

ZIGBEE1080A module has router function, when A node communicates with B node, if the distance between A node and B node is too long, it will lead to can not communicate. At this time, we can add B node between them, then A can send the data to C through B (B is used as a router).

ZIGBEE-1080A defaults to the terminal node, it can be configured for server mode according to the user needs.

ZIGBEE-1080A can be configured for enhanced, communication distance can upgrade to 1600m (line of sight, the theoretical value), enhanced module name is ZIGBEE-1080A+.

Unpacking Checklist

Check the shipping carton for any damage. If the shipping carton and contents are damaged, notify the local dealer or sales for a replacement. Retain the shipping carton and packing material for inspection by the dealer.

Check for the following items in the package. If there are any missing items, contact your local dealer or sales.

➤ ZIGBEE-1080A
➤ ART Card
    a) user's manual (pdf)
    b) drive
    c) catalog
➤ Warranty Card

FEATURES

■ Transmission Distance: view distance 100m (ZIGBEE1080A)/view distance 1600m (ZIGBEE1080A+)
■ Power Supply: untreated +10V~+30V
■ Power Consumption: 0.62W @24VDC (when the module do not use XBEE network to transmit data)

Chapter 2 Components Layout Diagram and a Brief Description

2.1 The Main Component Layout Diagram
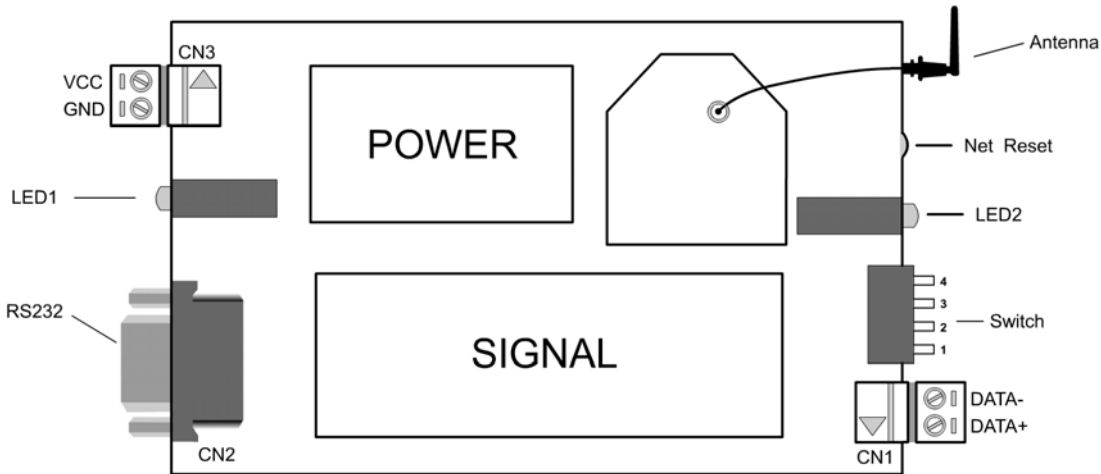
2.2 Description the Main Component

2.2.1 Wiring Terminal

GND: power negative

VCC: power positive (unregulated +10V ~ +30V$_{DC}$)

DATA+: RS485 serial port positive (A)

DATA-: RS485 serial port negative (B)

2.2.2Status Indicator

LED indicator 1: Green light: serial port to receive data.

                     Red light: serial port to send data.

LED indicator 2: Green light: power indicator, on for normal.

                     Red light: network connection indicator, the light is flashing when composed network.

2.2.3 Network Reset Button

The network failed to start after re-configure the module, we can press this button to reset the network.

2.2.4 RS232 Interface

RS232 interface: connect this port with PC to configure the XBEE module K1=OFF, K2=ON).

2.2.5 DIP Switch

ZIGBEE-1080A DIP switch functions are as follows:

1. K1: ON,   RS232 transfer mode, K2 must be OFF;

    OFF, RS485 transfer mode, K2 must be OFF (default).

    K2: ON, connect 9-pin serial interface with the internal ZIGBEE module, K1 must be OFF;

    OFF, connect 9-pin serial interface with internal serial interface, K1 must be OFF (default).

2. K3, K4: module communication baud rate selection (the current version of the module is not optional,

    the default is 38400 bits/s).

K 3	K4	Baud Rate
0	0	38400 bits/s (default)
0	1	19200bits/s
1	0	9600bits/s
1	1	4800bits/s

2.2.6 Considerations

1. There are three important factors for ZIGBEE1080A: power, PAN ID and baud rate. We can through the power indicator to judge whether the power supply is normal, PAN ID must be the same as the server (the customer can see the default PAN ID and the 64 bits number of the ZIGBEE module from the label), the baud rate is RS232 (or RS485) device baud rate, the baud rates must be the same to the normal communication.

2. The RS232 and RS485 are multiplex serial interface, we can not use them at the same time.

3. If modify the transmission baud rate of ZIGBEE1080A, we need to set the DIP switch K2 to OFF, then set K3 and K4 to the desired position (see the description of the DIP switch), then waiting for 3S to normal communication

4. When change the PAN ID and module identification, connect the RS232 interface with the PC, then set K2 to ON, set K1 to OFF. Start the configuration software, select the connection baud rate (the same as the DIP switch settings), after connect successfully, the module can be configured correctly; after ZIGBEE module configuration is completed, set K2 to OFF, K1 to the original state.

5. If there are multiple ZIGBEE1080s or other servers, we must set the PAN ID of the Zigbee1080A and other PAN ID that is added to the server are the same.

6. When use the API approach, the maximum packet size is 72 bytes, remove the specific byte of the API, if use the

ZIGBEE network to send data packets, the user area allows the maximum transmission length is 54 bytes, and if receiving the data packets, the user area allows the maximum receiving length is 55 bytes.

7. This module supports only six hop, view distance 100m, can add to six routes, the length can be expanded to 600m.

8. If the communication distance more than 100m, we can use ZIGBEE1080A+.
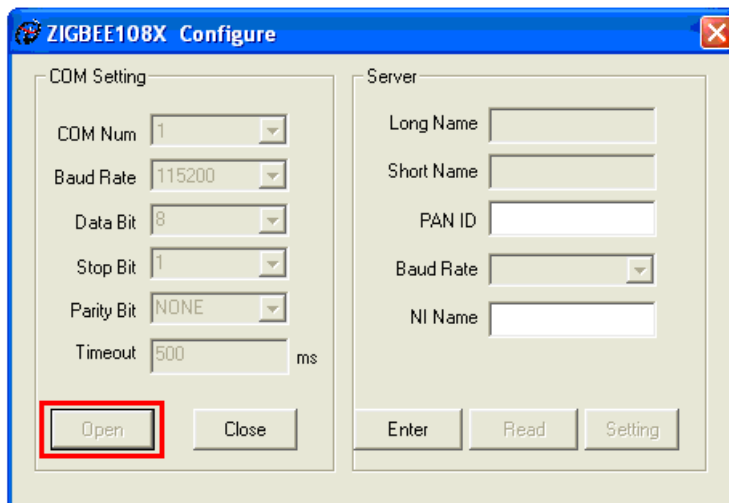
Chapter3 Operation Interface

3.1 Configure the server

1. Connect the server to the PC.

Open the "Configure program": according to the path "Start--Program—ART Data Acquisition Measurement Suite—Zigbee10XX Distributed Data Acquisition Module—Configure program" to configure the server.

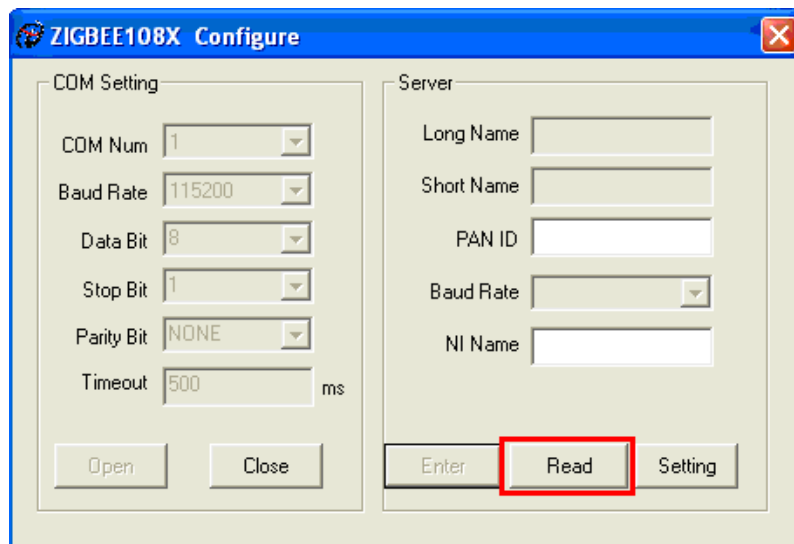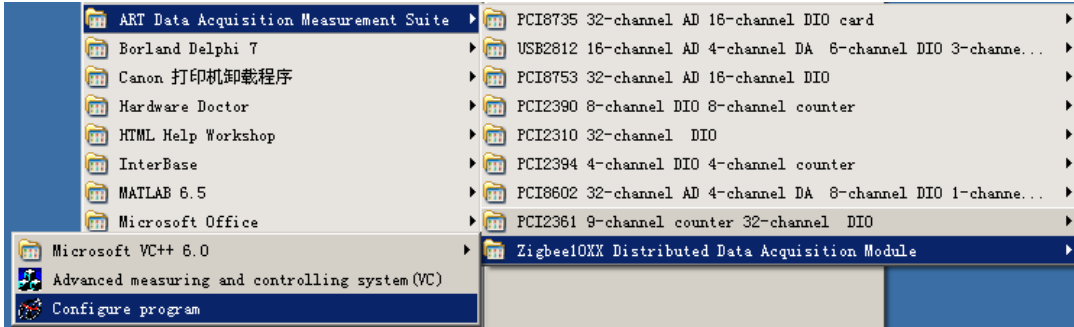Note: the server's baud rate is 115200, and it can't be modified by users.
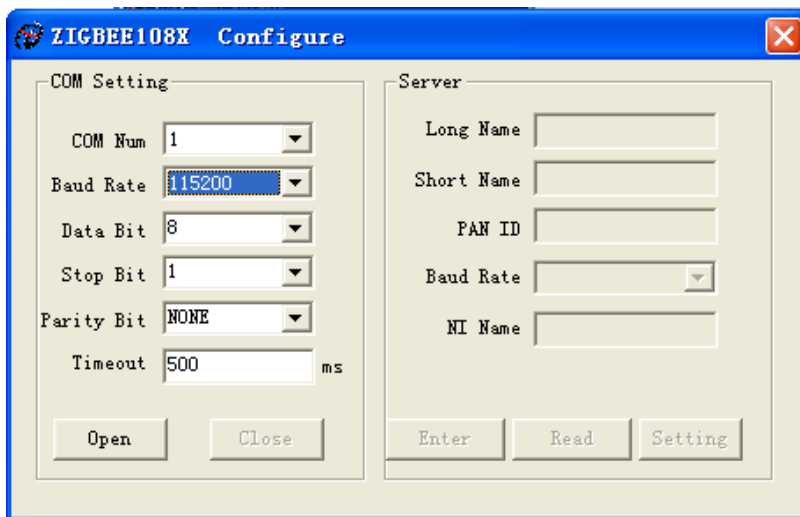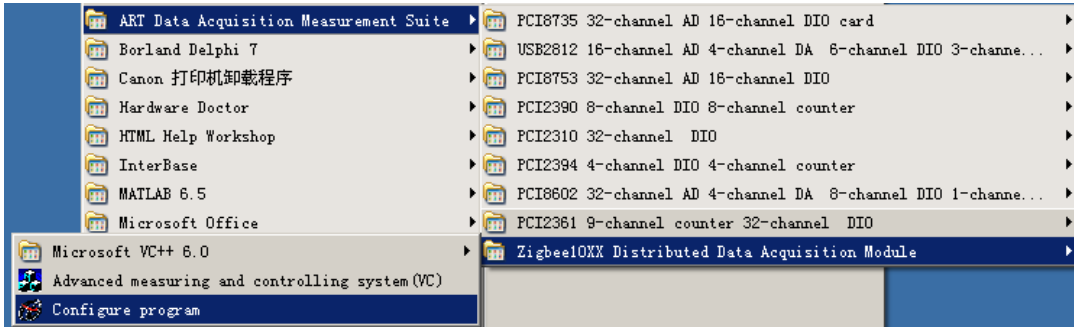
2. Click "Open", and then "Enter", the figures are as followed.
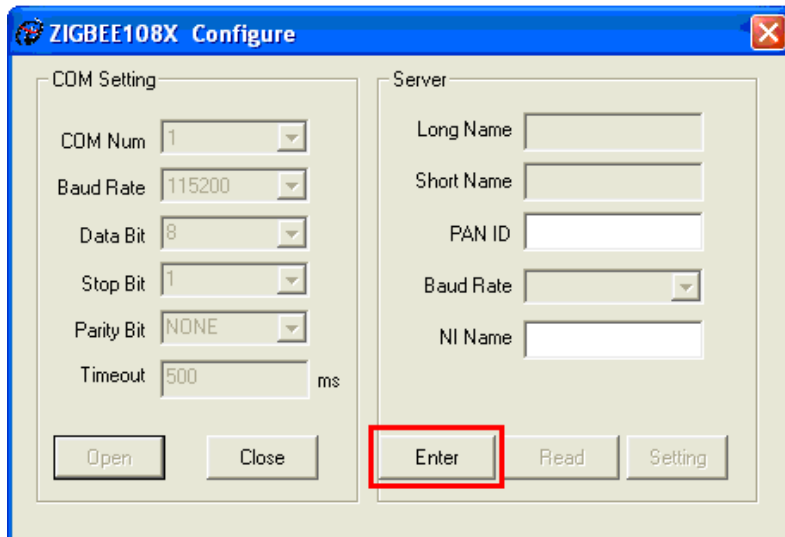
4. Click "Read", and then set the PAN ID, at last, click "Setting". PAN ID's range is 1-3FFF.
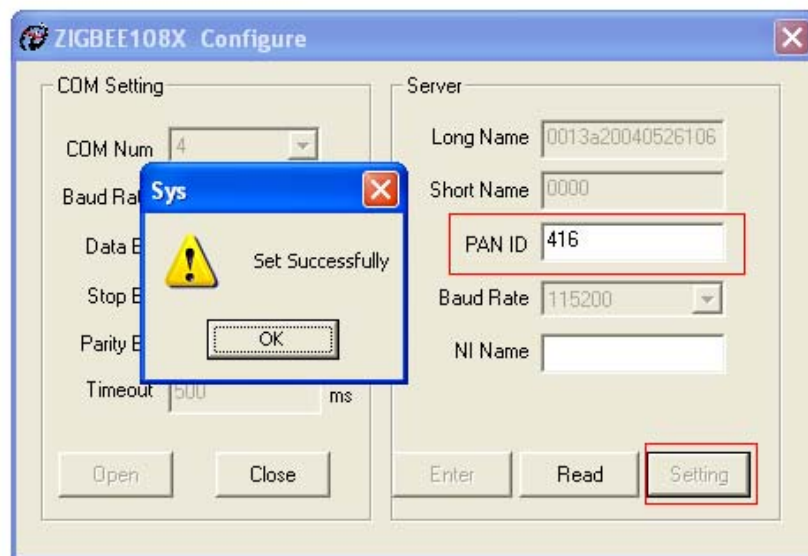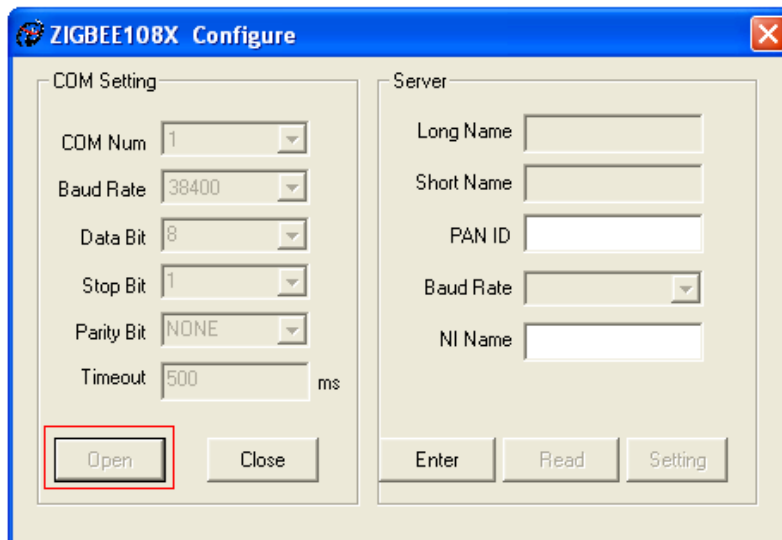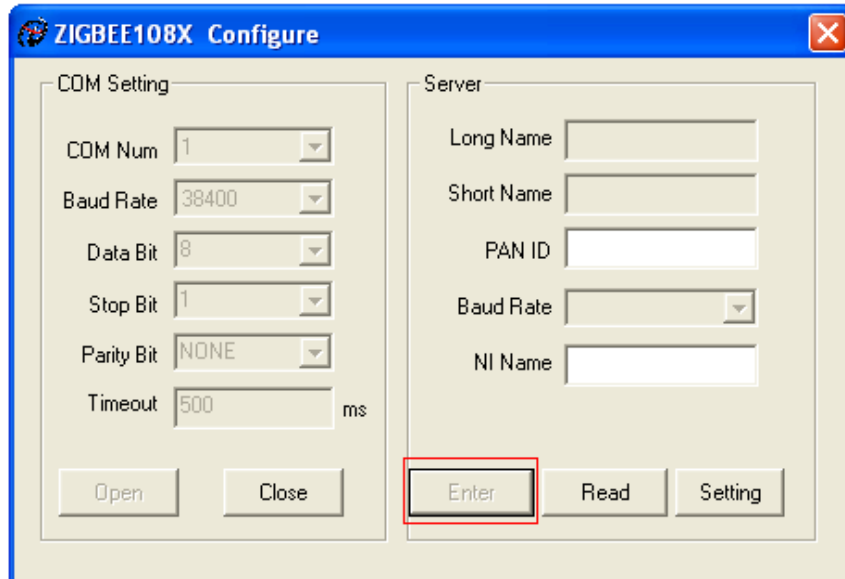
3.2 Configure Zigbee1080A

1. Connect Zigbee1080A to the PC.

   Open the "Configure program": according to the path "Start--Program—ART Data Acquisition Measurement Suite—Zigbee10XX Distributed Data Acquisition Module—Configure program" to configure the server.

   Note: the module's serial port baud rate is 9600, and it can't be modified by users.

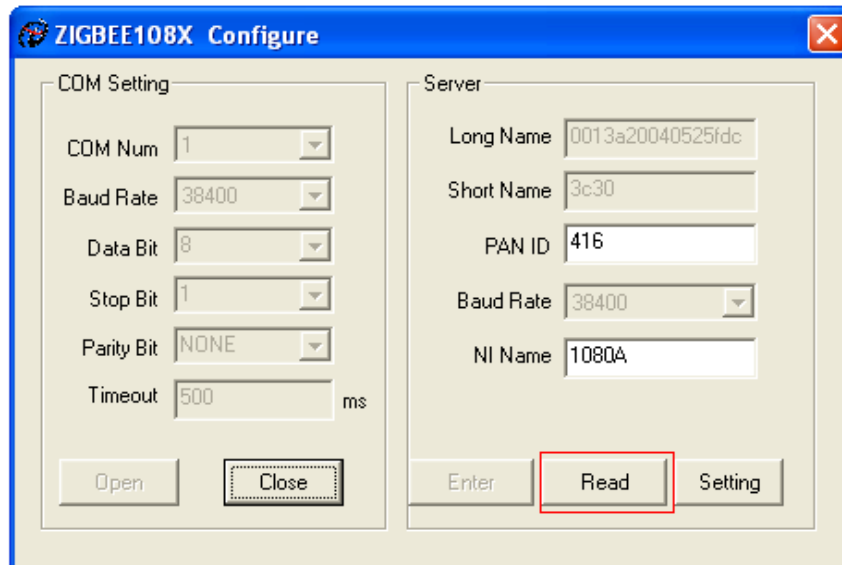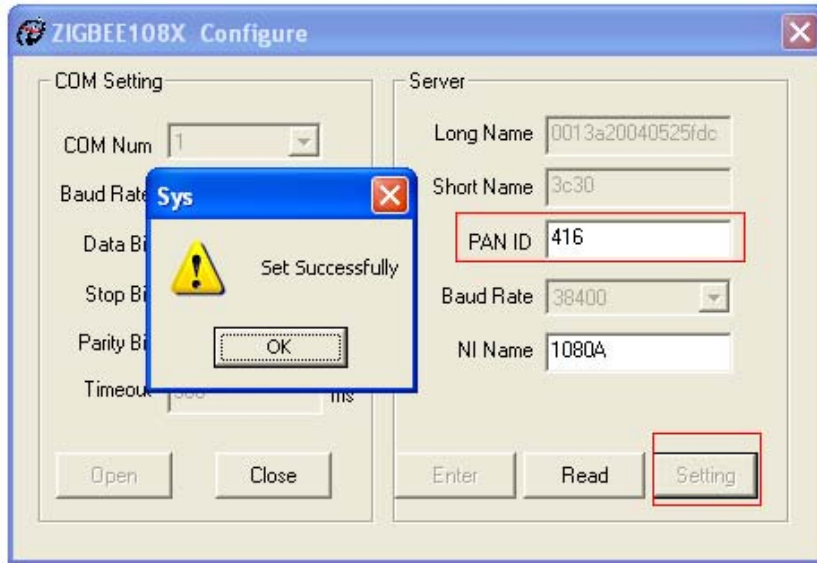2. Click "Open", and then "Enter", the figures are as followed.

4. Click "Read", and then set the PAN ID, at last, click "Setting."
   Note: Zigbee1080A's "PAN ID" must be the same as the server's. Its range is also 1-3FFF.
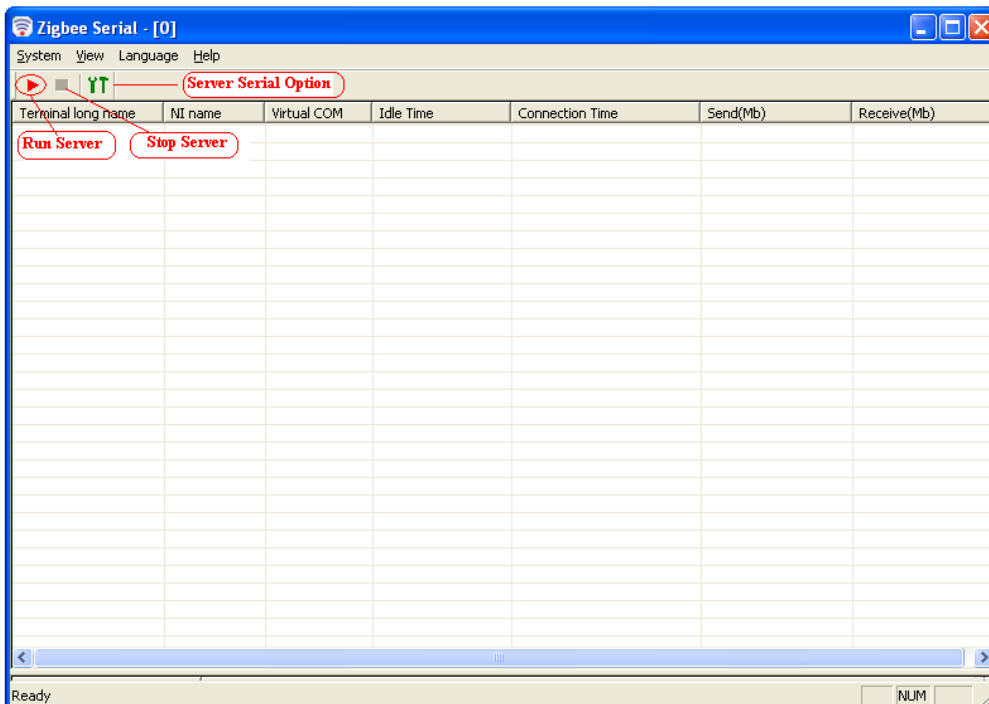
3.3 Application Method of Zigbee1080A

1. After configure the server and Zigbee1080A, re-power them.

2. Open the "Advanced measuring and controlling system", the path is "Start--Program—ART Data Acquisition Measurement Suite—ZigbeeServer Distributed Data Acquisition Module—Advanced measuring and controlling system". The interface is as followed.

3. Search the module.
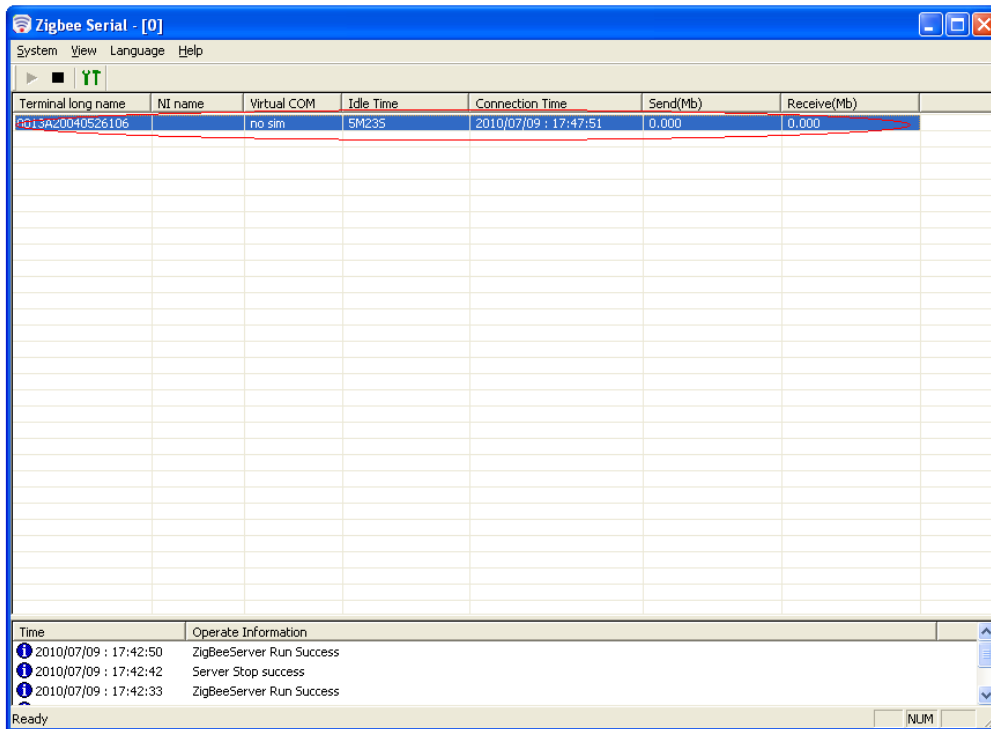
4. Server serial option.
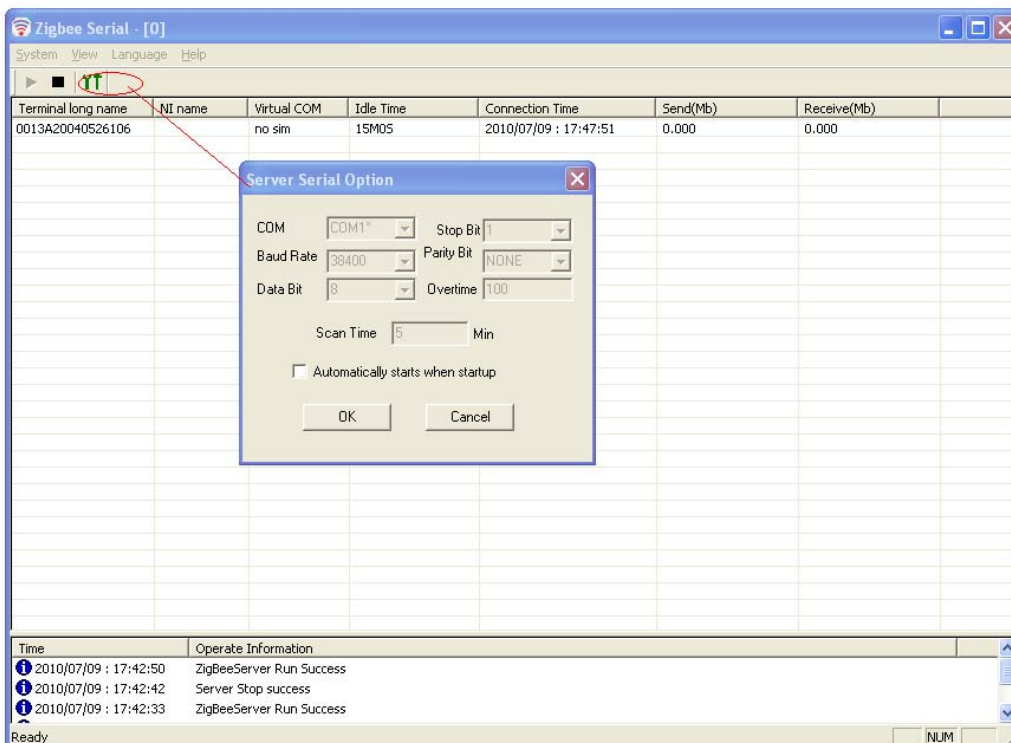
5. Right-click the module that online to choose any of these menu items.

Chapter4 Notes and Warranty Policy

4.1 Notes

1. If there are multiple ZIGBEE1080A modules or other servers, we must set the PAN ID the same (ZIGBEE1080A and other servers which will join).
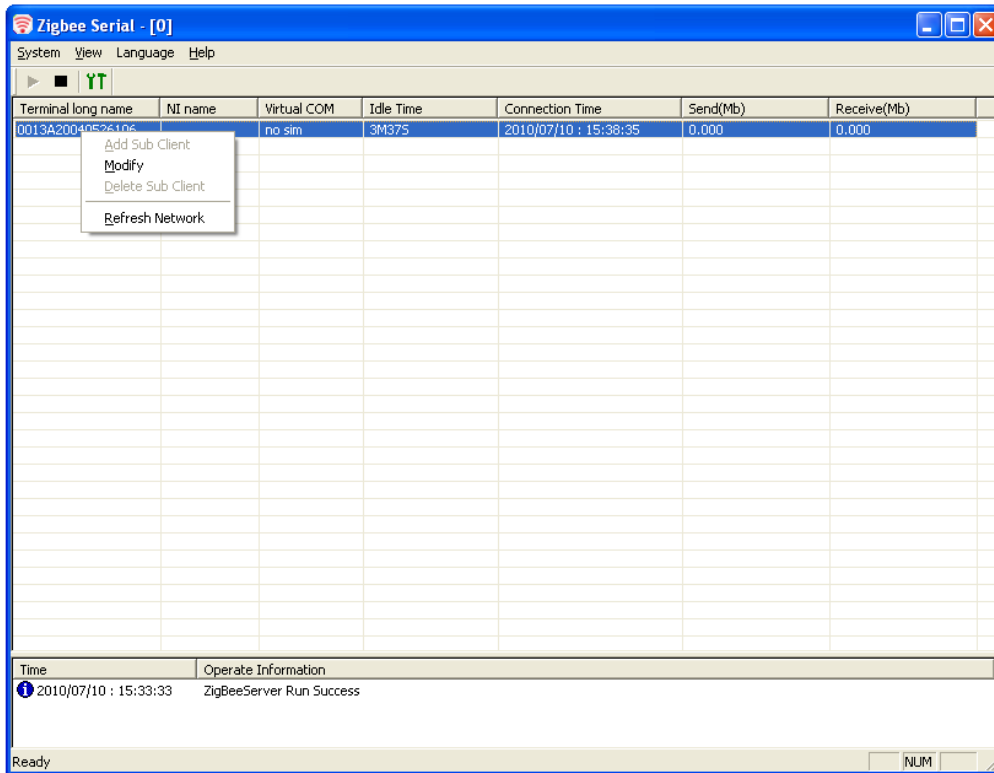2. In API mode, the maximum length of each packet is 72 bytes in the network, in addition to the API format-specific bytes, so when send the data by ZIGBEE network, the user area can send 54 bytes (the max length) and it can receive 55 bytes (the max length).
3. ZIGBEE1080A module can be configured for server mode. When two ZIGBEE1080A modules all connect with the user devices, we can set one ZIGBEE1080A to server mode, another is set to the terminal node. When use PC or other machines with the OS to connect with the user terminal devices, we should use ZIGBEE1080 as server, ZIGBEE1080A as terminal node.
4. When configure ZIGBEE1080A, we should set the switch2=ON, switch1=OFF, after configuration is completed, set the switch2= OFF, restore the original status of switch1.
5. If use ZIGBEE1080A as a server, note before pursue.
6. This module only supports 6-hop.

4.2 Warranty Policy

Thank you for choosing ART. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ART's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: www.art-control.com.

2. All ART products come with a limited two-year warranty:
➢ The warranty period starts on the day the product is shipped from ART's factory
➢ For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ART is not responsible for any loss of data.
➢ Please ensure the use of properly licensed software with our systems. ART does not condone the use of pirated software and will not service systems using such software. ART will not be held legally responsible for products shipped with unlicensed software installed by the user.

3. Our repair service is not covered by ART's guarantee in the following situations:
➢ Damage caused by not following instructions in the User's Manual.
➢ Damage caused by carelessness on the user's part during product transportation.
➢ Damage caused by unsuitable storage environments (i.e. high temperatures, high humidity, or volatile chemicals).
➢ Damage from improper repair by unauthorized ART technicians.
➢ Products with altered and/or damaged serial numbers are not entitled to our service.

4. Customers are responsible for shipping costs to transport damaged products to our company or sales office.

5. To ensure the speed and quality of product repair, please download an RMA application form from our company website.