KB2001-N Data Converter
User's Manual

Shenzhen Kingbird Network Technology CO.,LTD

Add: 12C/12D, Tower B, Haiwang Building, NanHai Road, Nanshan District, Shenzhen, Guangdong, China
TEL:+86-755-82556825 / 83239613 **Fax: +86-755-83239613 EXT.: 8012**
Web: http://www.kingbirdnet.com **EMAIL: sales@kingbirdnet.com**

1. Overview

KB2001-N is data protocol converter which transmits the data between RS232/RS485 and TCP/IP network. KB2001-N supply 10M/100M Ethernet interface upwards, and supply one standard RS232 (or RS485) COM port. It have 16K buffer, its parameters can be set with software, the baud rate support from 300bps to 115200bps. KB2001-N can suit for all kinds of network environment. KB2001-N can apply to all kinds of network environment, network parameter and COM parameter, KB2001-N can be set by configuration software or by User's programming.

Mainly Application:

- Access control system
- Remote AMR system
- Power automatically
- Intelligent traffic management
- LED Display information issue system
- Intelligent control data of building
- POS network
- Industry instruments and meters automation engineering

2. Interface and appearance

2.1 Indicator light

LED1：Above LED, Double color, Network cable connected it show green(No connected No light),if 串口 data send and receive from Serial port, It will be red.

LED2: Below LED, Double Color, when power supply connected It will show red, when KB2000 connected with server, it will change to green.

2.2 Network interface: RJ45，connect with TCP/IP network.

2.3 COM interface: RS232 or RS485.

KB2001-N have 10 pins，from left to right : PIN1-PIN10 they are defined as follow:

VCC	GND	UTXD1/A	URXD1/B	Output1	Input1	GND	Output2	status	Input2

Pin No.	Definition	Description	For User
1	VCC	Power: DC6~24V	
2	GND	Ground	
3	UTXD	TXD（DTU COM/RS485: A）	RS232,TTL:RXD; RS485:A
4	URXD	RXD（DTU COM/RS485: B）	RS232,TTL:TXD; RS485:B
5	Output1	Output NO.1 of IO	
6	Input1	Input No.1 of IO	
7	UGND	Ground (COM)	RS232,TTL, RS485:Data groud
8	Output2	Output No.1 of IO	
9	Status	Online is high,offline is low	
10	Input2	Input No.2 of IO	

3. The parameters of KB2001-N

3.1 General parameters

Name: Named current KB2001-N, the Max length is 16bytes (ASCII code);

Password: When you set the parameters of KB2001-N, you must input password, password is 6bytes ASCII code;

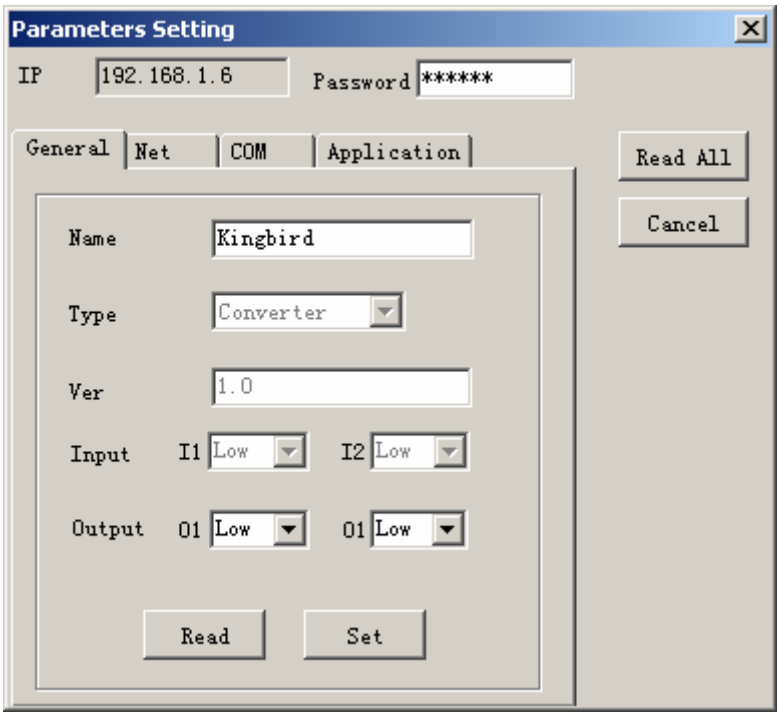
Type: Fixed Converter;

I1：No. 1 ON/Off input pin

I2：No. 2 ON/Off input pin

O1：No. 1 ON/Off output pin

O2：No. 2 ON/Off output pin



The General parameters interface of KB2001-N configuration software

3.2 Network Parameters

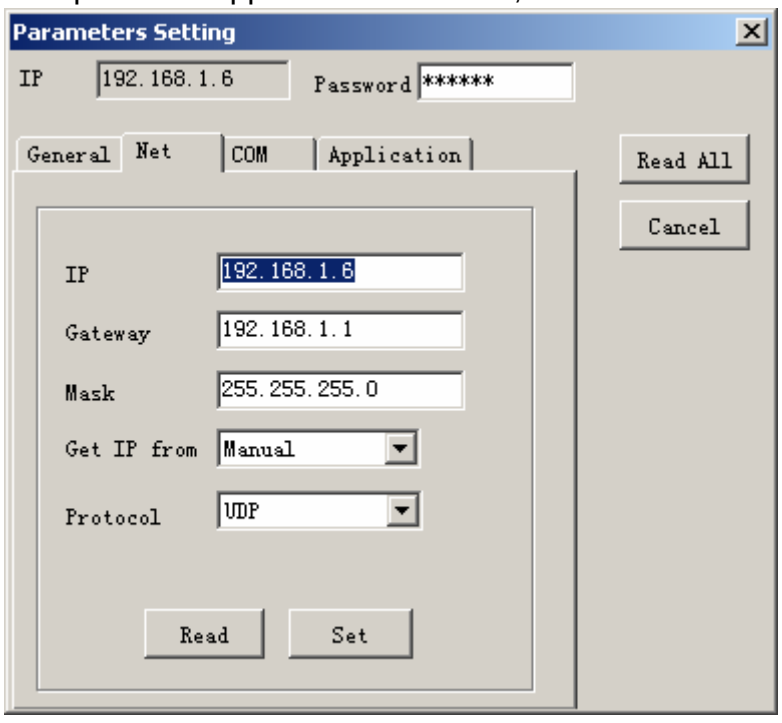
IP: IP address of KB2001-N, when it join into one subnet, its IP must be distributed depend on the network section.

Gateway: The gateway of subnet which KB2001-N accessed.

Subnet Mask: It depends on the subnet.

Get IP from: The type of getting IP include manually and Automatic. In Manually, IP address can be set. If in Automatic, KB2001-N can get the IP address by DHCP Server, DHCP server must be in the subnet, if you can not get IP through automatic, please use manually.

Protocol: Network protocol support UDP and TCP;



The Network parameters interface of KB2001-N configuration software

3.3 COM Parameters

Baud rate: The data transmit speed. User must set it same as PC or terminal device which connected. The bard rate of KB2001-N support from 300pbs to 115200pbs;

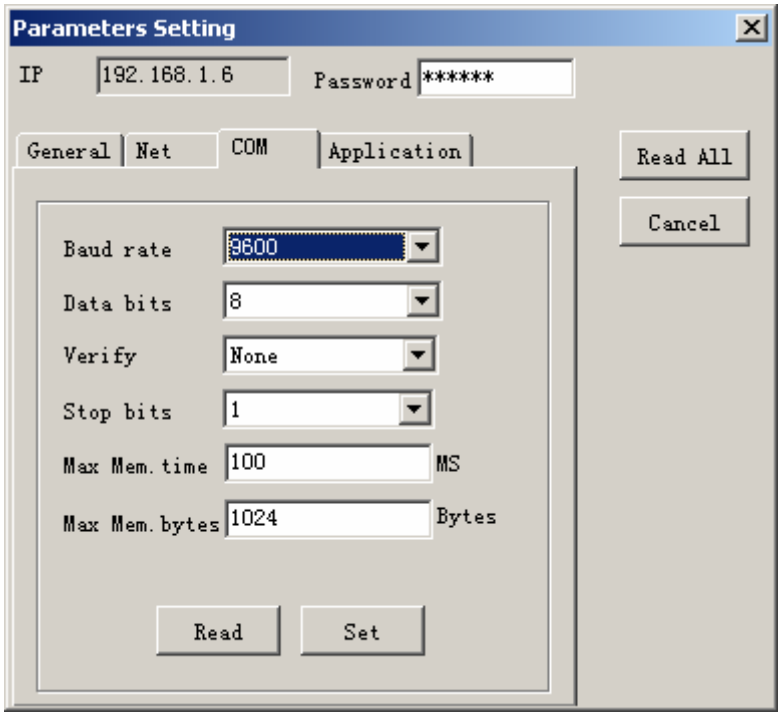
Data bits: In COM port asynchronous transmission, a group data real include data digit. KB2001-N support 5-8Bits data bits. Data bits must be set to same as the PC or terminal device which connected. In general it is 8bits;

Verify: KB2001-N's COM verify have three types: None, Even, Odd, User must set it same as PC or terminal device which connected.

Stop bits: In COM port asynchronous transmission, a data digit to indicate the end of this group data. KB2001-N support one and two stop bits. User must set it same as PC or terminal device which connected. In general the stop bits is 1bit;

Max Mem. Time: When KB2001-N received data from COM port, it will go into the buffer, if over Max MEM Time, and there are not next data come in, KB2001-N will transmit the data to the network.

Max Mem. Bytes: When KB2001-N received enough length data from COM port, KB2001-N will transmit the data to the network. KB2001-N will transmit the data to network when it satisfies Max MEM. Time and Max MEM. Bytes in one of two conditions.



The COM parameters interface of KB2001-N configuration software

3.4 Network Application parameters

Work Mode: Client and Server.

Local Port: The Local TCP port and UDP port.

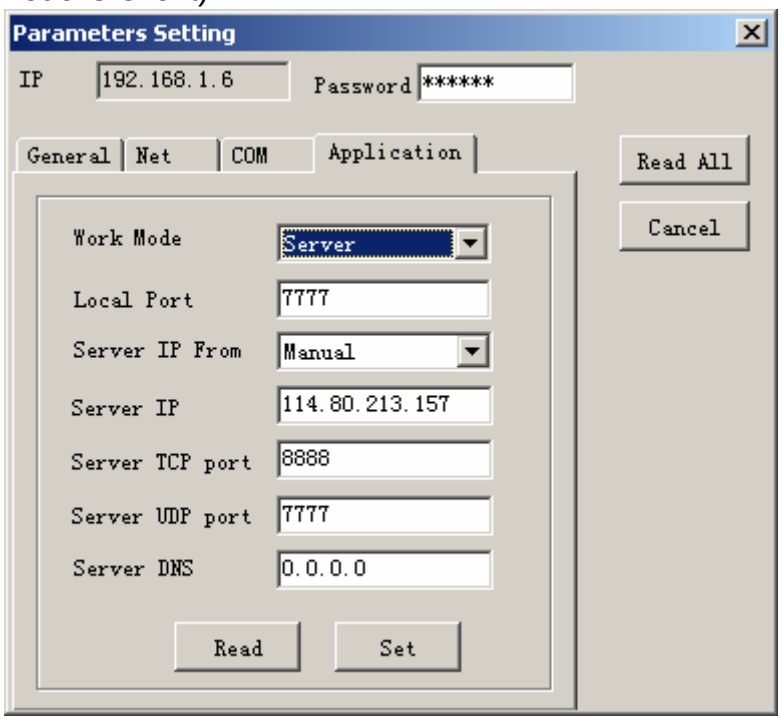
Server IP from: Manual and By DNS.

Server IP: When KB2001-N's work mode is Client, It must be appointed the server IP.

Server TCP port: The TCP port for specified KB2001-N communicate with Target host (This parameter is valid when KB2001-N Work mode is Client);

Server UDP port: The UDP port for specified KB2001-N communicate with Target host (This parameter is valid when KB2001-N Work mode is Client);

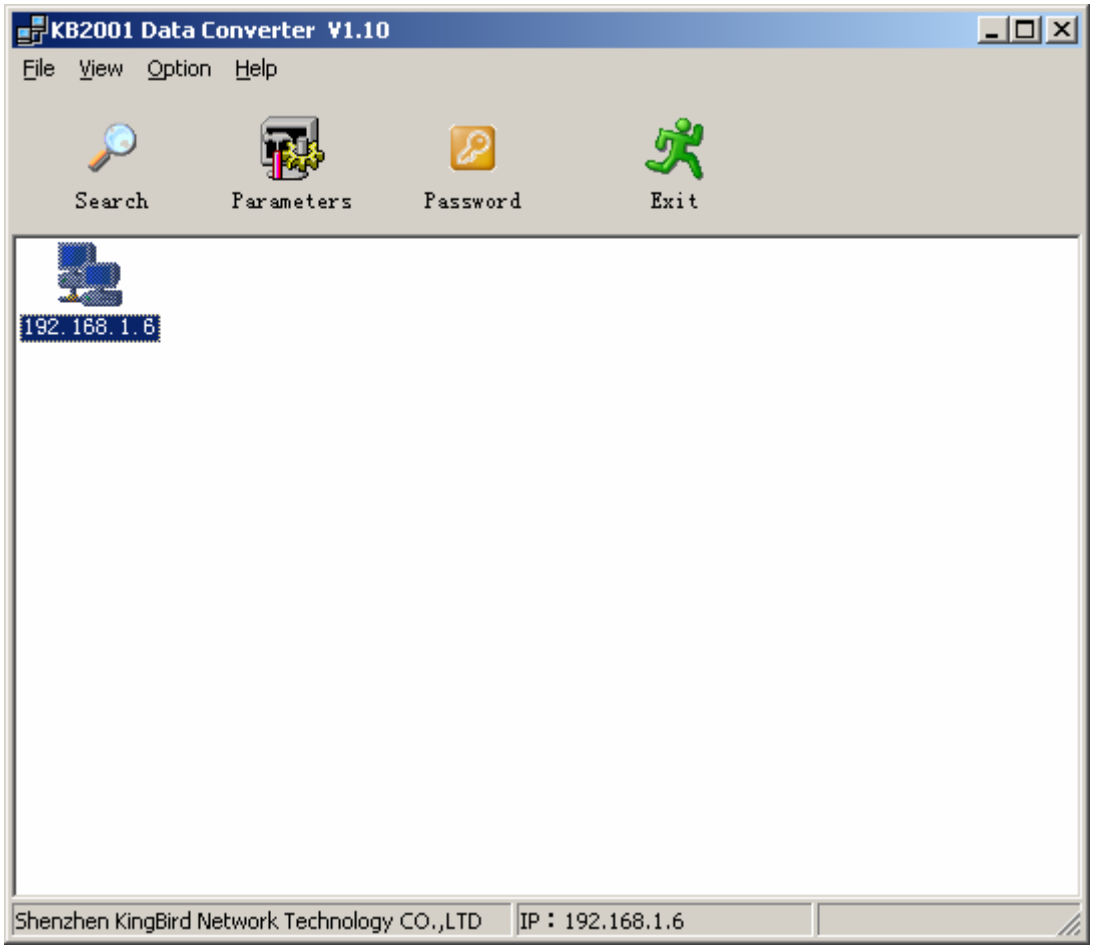
Server DNS: User can appoint the DNS of server. (This parameter is valid when KB2001-N Work mode is Client)



4. Operation and Management

Firstly user is advised to connect KB2001-N with the same subnet through network cable by Switch or HUB, and power on it, User can set KB2001-N.

User can Manage KB2001-N with the program (KB2001-N-NetConverter.exe). NetConverter can manage all KB2001-N in current subnet. It can search KB2001-N, view KB2001-N parameters, set KB2001-N and so on. The interface of the program as follow:

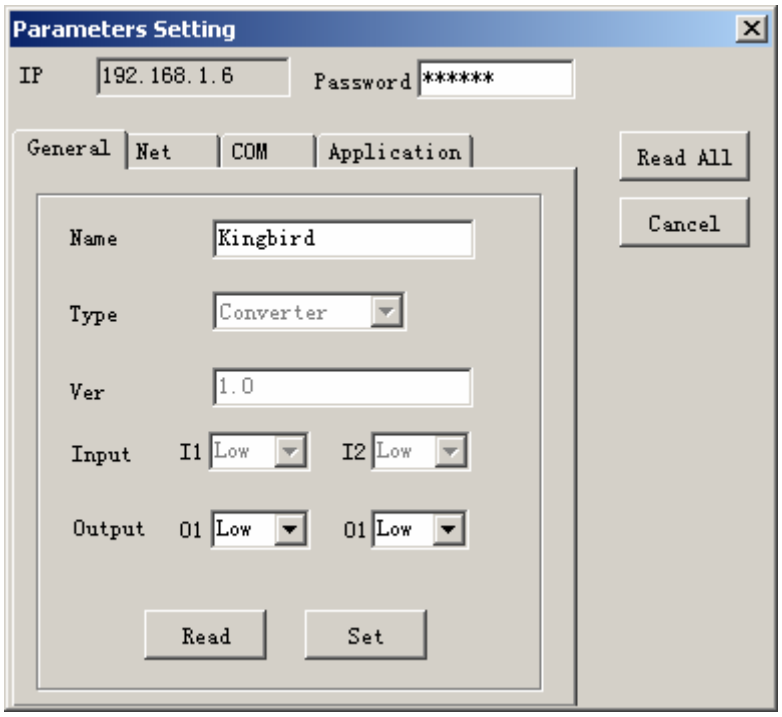


4.1 Search KB2001-N

User can find all KB2001-N through “Search” in the subnet. Please chose File menu, then Search. Or you can click Search button on the toolbar.

4.2 View parameters

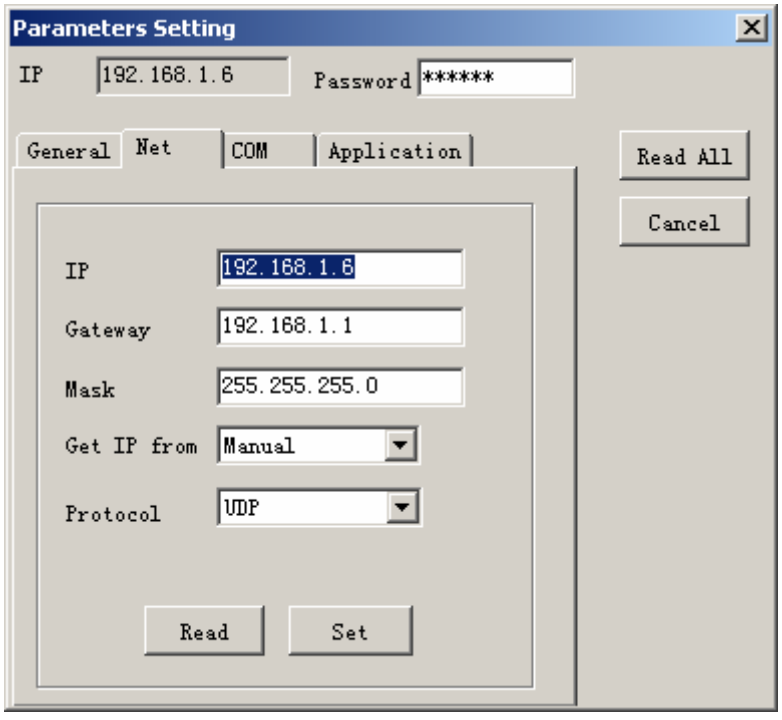
Please double click the icon of KB2001-N that searched, or after you searched KB2001-N, you can click Parameters button on the toolbar. Just as below picture:



Click Read button in this dialog, read the parameters again.

4.3 Set KB2001-N

If you want to amend parameters of KB2001-N, you can set them in the parameters setting dialog. Chose a KB2001-N name in the list, then click parameters button in the toolbar, you will go to the parameters setting dialog, the interface as follow:



if you need to amend some parameters, Please click “Set” button after amendment, then the parameters will be set.

Note:

1. When you set KB2001-N, you must input password, the default password is ‘000000’;

2. If you forget your password, please connect the PE pin to the GND pin when you set parameters, thus the password can not be required.

3. Some parameters must not be changed, the software have forbid them.

4. If you want to use IO function, please ask for IO control protocol from our company.

5. Setup Network and Application

5.1 KB2001-N Application Step

1. Planning Network

You can use KB2001-N as Client or Server according to your requirement. Generally, KB2001-N is connected with user's terminal unit; user can use one PC to access every KB2001-N for communication.

When user's software need to connect and access every terminal unit actively, then the software of PC is Client-side, user is advised to set KB2001-N as Server. When user's terminal unit need to connect or access the user's PC actively, the software of PC is in a passive listening state (Server work mode), then need to set KB2001-N as Client.

When KB2001-N is Server, the data transmitting mode is polling mode (Master station enquire, slave station reply), the real-time is not good in this mode, but the host network resource burden is light. If there is a quantity of slave stations, the interval of collection will be very slow. When KB2001-N is Client, the transmitting mode is uploading initiatively mode of slave station, the real-time is very good in this mode, but the host network resource burden is heavy. User can choose client or server according to your requirement.

2. Set KB2001-N's network parameters

First network parameters need to be set according to the situation of LAN. Connect KB2001-N with LAN: Please connect its RJ45 interface with the switch or Router of the LAN by network cable, then run KB2001-N configuration software, set its Gateway and subnet Mask same as LAN, and the IP must be unique (must not conflict with other PC or device)

For Example:

The PC in the LAN network parameters as follow:

IP：192.168.1.30，Gateway：192.168.1.1，subnet Mask：255.255.255.0

You must set the KB2001-N's network parameters as follow:

IP：192.168.1.X(X must be unique in this LAN)，Gateway：192.168.1.1，subnet Mask：255.255.255.0

You must choose the network protocol of KB2001-N. The network protocol has two types: TCP and UDP. The TCP protocol is based on connection. It must set up connection before transmit data, the advantage is that transmitting is reliable, it has retransmission, but the network resource burden is heavy and the speed is slow than UDP. The UDP protocol is not based on connection, its transmitting speed is faster, the network resource burden is light, but its transmitting is not reliable.

Note：

(1)You'd better set get IP from: by Manually, for your LAN may have not DHCP server.

(2) User need to set the network parameters match with LAN's when using KB2001-N, such as, the Gateway and subnet mask must same as LAN, the IP must be different with other PC or device in LAN.

3. Set other parameters

KB2001-N's other parameters as baud rate, data format and so on, user can set them depend on the serial port parameters of device.

4. Connect with KB2001-N

Please connect the RS232 or RS485 pin of KB2001-N with the RS232 or RS485 pin of the device unit.

If it is RS232, You must connect the RXD, TXD and DGND pin of KB2001-N with TXD, RXD and GND of your device unit.

If it is RS485, you must connect the A, B pin of KB2001-N with A, B pin of your device unit.

5 Star software and communicate with KB2001-N

If KB2001-N is Server mode, user's software must be Client mode. If KB2001-N is TCP protocol, user must input the target IP and port(i.e. IP and port of KB2001-N itself) in the user's software; the software will setup TCP connection with KB2001-N, and then transmit data for communication. if KB2001-N and user's software are UDP protocol, you need not set up connection, only input the IP and port(i.e. IP and port of KB2001-N itself) in the software, transmit data directly just OK.

If KB2001-N is Client mode, user's software must be Server mode. If KB2001-N is TCP protocol, when user's software is ran, it will open a TCP port for listening. User is advised to set the server IP parameters as user software's, set the server TCP port as user server software's TCP port, after KB2001-N ran, KB2001-N will setup TCP connection with user's software automatically, then KB2001-N can communicate with user's server software. If KB2001-N is UDP protocol, when user's software ran, it will open a UDP port for listening. you need not set up connection, only set the user,s IP and port as Server's IP and UDP port in the KB2001-N, then transmit data directly just OK.

6. NOTE

6.1 If you choose manually (get IP from configuration), the IP must not have been used (other KB2001-N, network device or PC).

6.2 When the KB2001-N is connected with Switch or HUB, please use direct cable, when the KB2001-N connect with PC, please use Cross cable.

7. Technical specifications

Buffer size: 45K；
COM baud rate: 300-115200bps
Power supply: 6-24VDC
Average working electric current:：<60mA
Power consumption: <500mW
Working temperature: -30℃-80℃
Size: 82mm(L)*59mm(W)*25.2mm(H)
Weight: 200g

8. Guarantee repair

Our Company supplies “three guarantees” (for repair, replacement or compensation of faulty products). But if it because force majeure, user open or modify it himself without permission, our company can not supply “three guarantees”.

User can replace products, if he bought product within one month which installation and use regularly.

Guarantee repair free of charge period: one year. Maintain for life.

Packing list

Item NO	Name	quantity	unit	memo
1	KB2001-N	1	Pcs	
2	Power supply	1	Pcs	
3	RS232 cable	1	Pcs	Provide only RS232
4	RS485 data line	1	Pcs	Provide only RS485
5	User manual	1	Pcs	
6	Software CD	1	Disc	