

Wireless Modem

User Manual

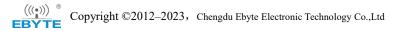


Dual Serial Port Server User Manual

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Content

Chapter 1 Product Introduction	1
1.1 Functions and Features	1
Chapter 2 Quick Start	2
2.1 Hardware preparation	2
2.2 Software Preparation	2
2.3 Device default parameter test steps	3
2.3.1 Hardware connection	
2.3.2 Device parameter configuration	3
2.3.3 Turn off the computer firewall	4
2.3.4 Open "serial port assist"	
2.3.5 Open Net assist	
2.3.6 TX, RX data Test	6
Chapter 3 Product Review	
3.1 Technical Parameters	7
3.2 Interface description	
3.3 Indicator light description	
3.4 Size	
Chapter 4 Basic functions	
4.1 Correspondence between channel and serial port	12
4.2 Local network parameters	
4.2.1 Local IP	
4.2.2 DNS (domain name resolution)	
4.2.3 Reconnection cycle for Network disconnection	
4.2.4 Timeout restart (restart without data)	13
4.3 Hardware reset to factory	
4.4 Device working mode	
4.4.1 TCP Server	
4.4.2 TCP Client	14
4.4.3 UDP Server	14
4.4.4 UDP Client	
4.4.5 HTTP client	15
4.5.6 MQTT client	17
4.6 Channel port	
Chapter 5 Advanced Features	21
5.1 Heartbeat package and registration package	
5.1.1 Heartbeat package	
5.1.2 Registration package	
5.2 Short connection	22
5.3 Serial buffer cleaning	
5.4 Modbus gateway	23
5.4.1 Simple Protocol Conversion	
5.4.2 Multi-host mode	



	5.4.3 Storage gateway	
	5.4.4 Configurable Gateway	
	5.4.5 Automatically upload	
5.5	5 Firmware upgrade	
	5.5.1 UDP upgrade	
	5.5.2 Serial upgrade	
Revis	sion History	
Abou	ut Us	
Revis	5 Firmware upgrade 5.5.1 UDP upgrade 5.5.2 Serial upgrade sion History	

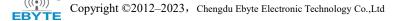


Chapter 1 Product Introduction

NB124ES is a 2-way serial port server that supports POE power supply. It integrates the TCP/IP protocol stack inside, which can realize data transparent transmission from the 2-way serial port to the Ethernet port. The device has the function of ModBus gateway, supports Modbus TCP to RTU, and supports automatic polling. The product adopts industrial-grade standard design to ensure the stability of the equipment in harsh working environments, and the rich indicator lights are used to feedback the different working states of the equipment.

1.1 Functions and Features

- Stable and reliable industrial design, high-level port protection;
- ♦ Abundant LED status indicators to quickly locate the working status of the device;
- Support POE power supply;
- Support Phoenix terminal or DC power supply, DC 8-28V wide voltage input, support reverse connection protection;
- ◆ Support terminal interface (RS485/RS422) and standard DB9 interface (RS232);
- The baud rate supports 2400~115200bps, and supports multiple verification methods;
- Support multiple registration packets and heartbeat packet sending, such as connection sending MAC, connection sending customization, etc.;
- Supports stable and reliable host computer and AT command configuration, independent configuration of four channels does not affect each other;
- Support DNS domain name resolution, domain name resolution server can be configured;
- Support DHCP to dynamically obtain IP, subnet mask, default gateway, DNS server address;
- Support multiple working modes TCP client, TCP server, UDP client, UDP server, MQTT client, HTTP client;
- The 2-way server mode can be turned on at the same time, supporting 14 clients to dynamically allocate and access, and a single server supports 15 clients to access;
- Support UDP server mode with memory mode, records the UDP address of the last communication, and uses it as the destination address of the next communication;
- Support a variety of Modbus gateways, which can realize the active reporting of RTU devices, support the mutual conversion of Modbus TCP and Modbus RTU protocols, and can be configured as a storage mode to automatically collect device data, or use a multi-host mode with one question and one answer;
- Support MQTT gateway function, fast access to Alibaba Cloud and standard MQTT3.1.1 servers (OneNET, Baidu Cloud, Huawei Cloud, etc.);
- Support Modbus data to actively report to TCP transparent transmission server, MQTT server and other servers;
- Support HTTP client mode, use HTTP/1.1 protocol, can be configured as GET, POST two request methods;
- Support TCP/IP direct communication or connect communication through "virtual serial port";
- Abundant independent LED status indicators, supporting links, network cables, data sending and receiving, etc.;
- Support the host computer to perform firmware upgrade or firmware switch through UDP or serial port;



 $\left(\left(\left(\begin{array}{c}\bullet\\\bullet\end{array}\right)\right)\right)^{-1}$

Chapter 2 Quick Start

2.1 Hardware preparation

One laptop with RJ45 network port; One NB124ES serial port server; One DC12V 1A power adapter (not necessary if there is a POE switch); A network cable; One USB to RS485 serial cable; As is shown in the following figure:



[Note] Only use one RS485 interface for demonstration, and please use the corresponding USB converter for other interfaces;

2.2 Software Preparation

Serial port debugging assistant (XCOM), network debugging assistant (TCP/IP debugging assistant), Ebyte network configuration tool (configuration host computer), official website address: www.cdebyte.com, product



details provide a download interface.

Se - National Acceleration	Image: Second v2.6 - - × Tort - - - ×	Eitye cody sol 430 - U X
TOP Some	000 UR-REAL CON€ ∨ Hand rate [11500 ∨ 20 by bits] ∨ Hand bits # Verity Han ∨ Operation ⊕ veri	Rape (BLHR) (Constraint) Sens B Load P Galaxy NAC Sense and Veryas Sense (ge
<i>P</i> (Log)Delay Mode <i>P</i> (Log)Delay Mode <i>P</i> (Log)Delay Mode <i>P</i> (Log)Delay Mode <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay <i>P</i> (Log)Delay	Small Small Freedman Small Timele Small Small Freedman Small Small Small Freedman Small Timele Small Small Freedman Small Timele Small Small Freedman Small Small Freedman Small Freedman Small Small Freedman Small Small Freedman Small Sm	lee (filme las
Network Assistant	XCOM	Ebyte network configuration tool

[Note] The serial port assistant software may be different from that provided on the official website, please refer to the similar one.

2.3 Device default parameter test steps

Different channels use the same IP but different local ports. For example, the factory-configured channel 1 corresponds to port 8001, and channel 2 corresponds to port 8002. For details, see the chapter "Correspondence Between Channels and Serial Ports".

2.3.1 Hardware connection



1. Connect the serial port server network port and the computer network port with a network cable;

Use a USB to RS485 serial cable to connect the USB port of the computer to any RS485 port of the serial server;
 Use the power adapter (DC 8-28V) to power on the device, and observe whether the indicator light is normal, refer to "indicator light description";

4. After confirming that there is no problem with the status, proceed to the next step of configuration;

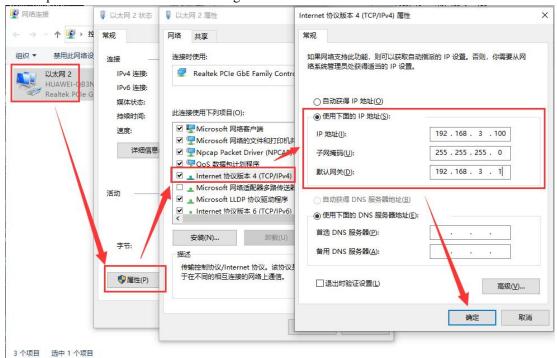
2.3.2 Device parameter configuration

In order to let users have a simple understanding of the serial server, we use the default parameters of the serial server to conduct data transparent transmission tests. The default parameters of NB124ES serial server device are shown in the table below.



Item no.	Default parameters
IP address	192.168.3.7
Subnet mask	255.255.255.0
gateway	192.168.3.1
Channel 1 working mode	TCP_SERVER
Channel 1 local port	8001
Serial port baud rate	115200
Serial port parameters	NONE/8/1/NONE

Make sure that the computer IP and serial server IP are in the same network segment and cannot conflict. The inspection method is shown in the figure below:



2.3.3 Turn off the computer firewall

If the communication is unsuccessful, the user can try to turn off the firewall on the computer and try again.





2.3.4 Open "serial port assist"

Choose correct COM number, configure correct serial port parameters (115200-8N1), open the serial port, as shown in the below:

XCOM V2.6		8 <u></u>	
		Port	
		COM3:USB-	SERIAL CH34 $ m \dot{q}$ \sim
		Baud rate	115200 ~
		Stop bits	1 ~
	/	Data bits	8 ~
	1	a si ty	None 🗸
		Operation	Open
		Save Dat	a Clear Data
		🗌 Hex	🗌 DTR
		RTS	□ 自动保存
Single Send Multi Send Protocol Transmit Help		☑ TimeSta	amp 100 ms
		1	Send
			Clear Send
Timing Cycle 1000 ms	Open Fil	e Send File	Stop Send
Hex Send Wordwrap 0	% 【火爆全网] 正点原子DS100)手持示波器上市
🔅 • www.openedv.com S:0 R:0		Current time1	5:19:02

2.3.5 Open Net assist

Choose"TCP Client", set remote IP as"192.168.3.7", set remote port as "8001" as shown in below:

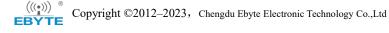


		Network As	sistant		₩ - □ ×
Settings (1) Protocol	Data log			NetAssist	<mark>v5.0.2</mark> 🗇 🗘
TCP Client		1			^
(2) Remote Host Addr		/			
192.168.3.7					
(3) Remote Host Port					
8001					
Connect					
Recv Options					
C ASCII C HEX					
✓ Log Display Mode	<				
Auto Linefeed					
Hide Received Data					
Save Recv to File					
<u>AutoScroll</u> <u>Clear</u>					
Send Options					
🍳 ASCII 🔿 HEX	Data Send	1		∳ (Clear 🚹 Clear
🔲 Use Escape Chars 🛈					
🔲 Auto Append Bytes					
🔲 Send from File					Send
Cycle 200 ms					
Shortcut History					
💣 Display in log mode with I	imestamp	0/0	RX:0	TX:0	Reset

2.3.6 TX, RX data Test

Click the **[**send **]** botton on the "Net assist" and "Serial port asssit" respectively, it can do transparent transmission between net and serial port successfully, as shown in the below picture:

	Network Assistant	× W	XCOM V2.6	- 🗆 ×
Settings (1) Protocol	Data log	NetAssist V5.0.2 🗇 📿	[2022-05-18 15:31:10.167] RX: EBYTE_NET_SEND	Port
TCP Client 💌	[2022-05-18 15:31:10.051]# SEND ASCII> EBYTE_NET_SEND		[2022-06-18 15:31:11.358]	COM3:USB-SERIAL CH34C \checkmark
(2) Remote Host Addr 192.168.3.7 -	[2022-05-18 15:31:11.241]# SEND ASCII>		RX: EBYTE_NET_SEND	Baud rate 115200 ~
(3) Remote Host Port	EBYTE_NET_SEND		[2022-05-18 15:31:12.093] RX: EBYTE_NET_SEND	Stop bits 1 🗸
8001	[2022-05-18 15:31:11.971]# SEND ASCII> EBYTE_NET_SEND		[2022-05-18 15:31:12.719]	Data bits 8 ~
· Oisconnect	[2022-05-18 15:31:12.601]# SEND ASCII> EBYTE NET SEND		RX: EBVTE_NET_SEND	Operation () Close
Recv Options	[2022-05-18 15:31:15 555]# RECV ASCII>		[2022-06-18 15:31:15.652] TX: ENTE_UART_SEND	
🔽 Log Display Mode 🤇	EBYTE_VART_SEND [2022-05-18 15:31:16.004]# RECV ASCII>		[2022-05-18 15:31:16.002] TX: EPTTE_UART_SEND [2022-05-18 15:31:16.441]	Save Data Clear Data
☐ Auto Linefeed ☐ Hide Received Data	EBYTE_VART_SEND [2022-05-18 15:31:16.444]# RECV ASCII>		TX: EBYTE_UART_SEND [2022-05-16 15:31-17.863]	□ RTS □ 自动保存
Save Recv to File AutoScroll Clear	EBYTE_VART_SEND [2022-05-18 15:31:17.865]# RECV ASCII>		TX: EBYTE_UART_SEND ~	TimeStamp 100 ms
Send Options	EBYTE_UART_SEND	*	Single Send Multi Send Protocol Transmit Help EBVTE VART SEND	
	Data Send EBYTE_NET_SEND	Clear & Clear		Send
Auto Append Bytes				Clear Send
Cycle 200 ms		Send	Timing Cycle 1000 ms Open File	Send File Stop Send
Shortcut <u>History</u>			□ Hex Send □ Wordwrap 0% 【火爆全网】]	E点原子DS100手持示波器上市
🕼 Ready!	4/5 RX:60	TX:80 Reset	* www.openedv.com S:60 R:64 CTS=0 DSR=0 DCD=0 Cur	rrent time15:32:04



Chapter 3 Product Review

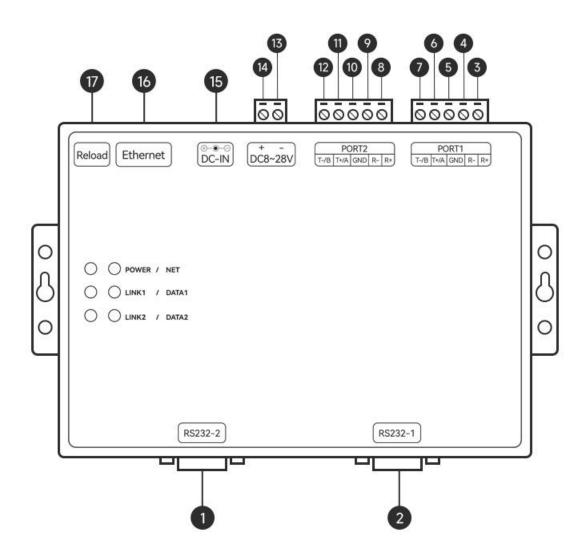
3.1 Technical Parameters

Item	Port	Instructions	
	Crimp terminal	DC 8 \sim 28 power supply;	
Power supply		Crimp terminal: 5.08mm Phoenix terminal	
I ower suppry	DC female head	DC female head: straight plug-in round hole, OD	
		5.5mm, ID 2.0mm;	
Network Port	RJ45	10M, POE version support POE power supply	
	Channel 1 \sim	Port 1 (RS485, 3.81mm Phoenix terminal);	
Serial Port	Channel 2	Port 2 (RS232, standard RS232, DB9 female head);	
		Port 3 (RS422, 3.81mm Phoenix terminal);	
Working Mode		:), TCP Client, UDP Server, UDP Client, HTTP Client,	
	MQTT Client		
Network	TCP/IP、UDP、M	QTT、HTTP、IPv4、ICMP、APR、DHCP、DNS	
Protocol			
IP acquisition	DHCP, State IP (d	lefault)	
method	. 11	C 11	
DNS	support, address co	nfigurable	
Configure	Parameter configuration host computer, AT command		
Method			
IP address	192.168.3.7 (customizable) Channel 1~2: 8001-8002 (customizable)		
Local port Subnet mask	255.255.255.0 (customizable)		
Gateway	192.168.3.1 (customizable)		
Serial cache	512 Byte		
Serial	512 D-4		
packaging mechanism	512 Byte		
Serial baud rate	$2400 \sim 115200 \text{ bm}$	a (default 115200)	
	$2400 \sim 115200 \mathrm{bp}$	s (default 115200)	
Data bit Stop bit	8		
1	$\frac{1}{(\text{default})} \frac{2}{2}$		
Parity bit	None (default), Odd, Even		
Installation	Positioning hole		
Product size	173 x 95x26.5mm (LxWxH)		
Product weight	$360g \pm 5g$		
Working			
temperature and	-40 \sim +85°C, 5% \sim 95%RH (no condensation)		
humidity			

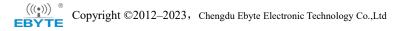
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Storage	
temperature and	-40 \sim +105°C, 5% \sim 95%RH (no condensation)
humidity	

3.2 Interface description



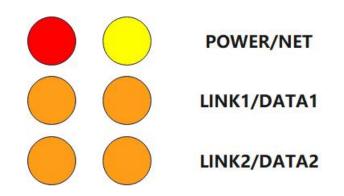
序号	名称	功能	说明
1	RS232-2	Serial port 2-RS232	Standard DB9 female head, 2-TXD, 3-RXD,
1	K3232-2	Senai port 2-KS252	5-GND
2	RS232-1	Serial port 1-RS232	Standard DB9 female head, 2-TXD, 3-RXD,
2	K5252-1	Senai port 1-KS252	5-GND
3	RS422-1-R+	Serial port 1-RS422 -R+	3.81mm Phoenix terminal
4	RS422-1-R-	Serial port 1-RS422 -R-	3.81mm Phoenix terminal
5	GND	Serial port 1 Ground	3.81mm Phoenix terminal



6	RS422-1-T+/A Serial port 1-RS422 -T+ Serial port 1-RS485 A		3.81mm Phoenix terminal
7	RS422-1-T-/B	Serial port 1-RS422 -T- Serial port 1-RS485 B	3.81mm Phoenix terminal
8	RS422-2-R+	Serial port 2-RS422 -R+	3.81mm Phoenix terminal
9	RS422-2-R-	Serial port 2-RS422 -R-	3.81mm Phoenix terminal
10	GND	Serial port 2 Ground	3.81mm Phoenix terminal
11	RS422-2-T+/A	Serial port 2-RS422 -T+ Serial port 2-RS485 A	3.81mm Phoenix terminal
12	12RS422-2-T-/BSerial port 2-RS422 -T- Serial port 2-RS485 B		3.81mm Phoenix terminal
13	-	DC 8-28 V Negative pole	DC 8-28 V, 5.08mm Phoenix terminal;
14	+ DC 8-28 V Positive pole		DC 8-28 V, 5.08mm Phoenix terminal;
15			DC 8-28 V; OD 5.5mm, ID 2.0mm straight plug-in round hole;
16	Ethernet	Ethernet interface	Standard RJ45 Ethernet interface
17	Reload	factory reset button	After long pressing for 5s, NET led is always on for 5s, and the device restores to factory settings

Note: Phoenix terminal cannot supply power with the DC plug at the same time.

3.3 Indicator light description

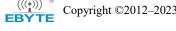


Label	Function	Instructions
POWER	Power indicator	Connect to the power supply, light up;
NET	Running lights	Disconnected: 100ms on and 900ms off, flashing periodically; Connected: flashing in 1s cycle;
LINK1	Channel 1 Status Indicator	No link connection: the indicator light is off; With link connection: the indicator light is always on; UDP mode: the indicator light is always on;

DATA1	Channel 1 data	Data sending and receiving: flashes when the network or
DAIAI	indicator	serial port sends and receives data;
	Channel 2 Status	No link connection: the indicator light is off;
LINK2	Indicator	With link connection: the indicator light is always on;
	Indicator	UDP mode: the indicator light is always on;
	Channel 2 data	Data sending and receiving: flashes when the network or
DATA2	indicator	serial port sends and receives data;

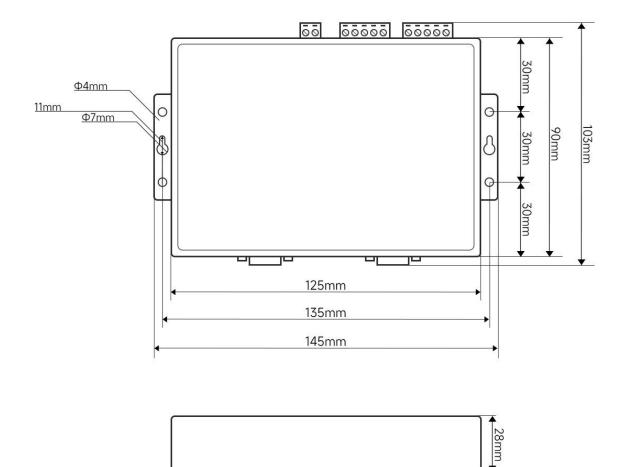
[Note] Status of some special working mode indicator lights:

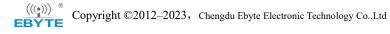
- 1、 Restore the factory, NET is always on for 5s, and the other indicators remain on and will go out until NET goes out;
- 2. Wait for the firmware burning, except for the power indicator light, the other indicators will blink at a cycle of 50ms until the upgrade file is transferred, or exit the firmware burning waits;
- During the firmware burning operation, the indicator lights except the power indicator will flash at a cycle of 500ms until the upgrade is completed;





3.4 Size





Chapter 4 Basic functions

4.1 Correspondence between channel and serial port

Baud rate: 2400、4800、9600、14400、19200、38400、57600、76800、115200bps; Data bit: Only supports 8 bits; Parity bit: support no parity (NONE), odd parity (ODD), even parity (EVEN); Hardware flow control: not supported;

Channel	Serial Port	Indicator	Serial protocol	Factory port, mode
Channel 1	COM1	PORT1	RS485、RS232、RS422	8001、TCPS
Channel 2	COM2	PORT2	RS485、RS232、RS422	8002、TCPS

4.2 Local network parameters

4.2.1 Local IP

STATIC (Static IP): Users can define and configure IP, subnet mask, default gateway, domain name resolution server (DNS server);

DHCP (dynamic IP acquisition): The device logs in to the server to automatically obtain the IP address, subnet mask, gateway address, and DNS server address;

4.2.2 DNS (domain name resolution)

When the user enters the domain name, the DNS server will be automatically queried, and the DNS server will retrieve the database to obtain the corresponding IP address. In the static IP mode, the user can customize the domain name resolution server to resolve private domain name server data. In the dynamic IP mode The device automatically follows the domain name resolution server configured by the routing device, and the user only needs to modify the DNS server of the routing device, no need to configure the device.

4.2.3 Reconnection cycle for Network disconnection

When the device detects that it is disconnected from the server, it periodically initiates a

reconnection request. Therefore, the "disconnection reconnection time" will not affect the connection establishment time under normal circumstances. The user can customize the reconnection request period, and the default is 5s.

4.2.4 Timeout restart (restart without data)

The device monitors data sending and receiving. If the device does not send and receive data for a long time, the device will automatically restart to ensure the stability of long-term work.

The default cycle of this function is 30 minutes, and the user can customize the cycle of restarting with timeout or no data.

4.3 Hardware reset to factory

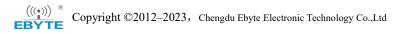
Keep pressing the Reload pin of the device for 5s until the NET indicator stops flashing, keep the NET indicator on for 5s, and the device is restored to factory.

4.4 Device working mode

4.4.1 TCP Server

In the TCP Server mode, the device listens to the local port, accepts the connection request from the client and establishes a connection for data communication. When the Modbus gateway function is turned off, the device sends the data received by the serial port to all client devices connected to the device.

The number of clients that can be accessed by the server is dynamically adjusted. First, ensure that each channel of the 2 channels can establish a complete communication link. In addition, the device also has 14 dynamic access communication links. For example, if the device turns on the 2-channel server mode, each The server can access 8 client devices, or if the device opens 1 server, the server can connect to 15 client devices. If the number of client devices exceeds the access number, the device will refuse to connect.



4.4.2 TCP Client

When the device is working, it will actively initiate a connection request to the server and establish a connection to realize the interaction between serial port data and server data.

To use the client, you need to configure the IP address/domain name and target port of the target accurately.

The two channels can independently open 2-way TCP clients.

4.4.3 UDP Server

UDP Server means that the device does not verify the source IP address of the data when using the UDP protocol to communicate. After receiving a UDP data packet, it saves the source IP address and source port of the data packet, and sets it as the target IP and port, so The data sent by the device only sends data packets to the source IP address and port where the device received the data last time.

This mode is usually used in scenarios where multiple network devices communicate with this device, and the frequency is high, and the TCP Server cannot meet the conditions.

Using UDP Server requires the remote UDP device to send data first, otherwise the data cannot be sent normally.

[Note] In UDP mode, the data sent by the network to the device should be less than 512Bit per packet, otherwise it will cause data loss.

4.4.4 UDP Client

UDP Client is a connectionless transmission protocol that provides transaction-oriented simple and unreliable information transmission services. There is no connection establishment and disconnection, and data can be sent to the other party only by configuring the destination IP and destination port. It is usually used in data transmission scenarios where there is no requirement for the packet loss rate, the data packets are small and the sending frequency is fast, and the data is to be transmitted to the specified IP.

In UDP Client mode, the device will only communicate with the configured (target IP and target port) remote UDP device.

In this mode, the destination address is set to 255.255.255.255, and the sending data will be

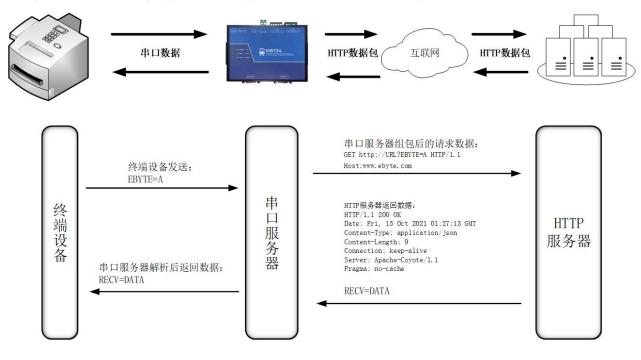
broadcast on the entire network segment, but the sending and receiving devices need to ensure that the ports are consistent, and ensure the device can also receive broadcast data.

[Note] In UDP mode, the data sent by the network to the device should be less than 512Bit per packet, otherwise it will cause data loss.

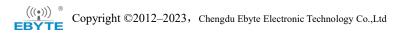
4.4.5 HTTP client

This mode can realize HTTP automatic package function, and provides two methods of GET and POST. Customers can configure URL, Header and other parameters by themselves, and the device will send the package to realize fast communication between serial port data and HTTP server. URL and Header are the most The length supports 128 bytes of data, and the two channels can independently open the HTTP client mode without affecting each other.

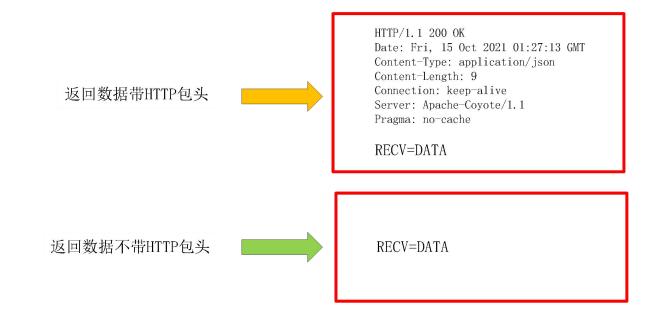
The HTTP request data should be smaller than the packet length (512 bytes), otherwise the device will divide the request data into multiple packets for request, resulting in abnormal request.



It supports configuring whether to return the HTTP protocol header, and the returned data is shown in the figure below:







Configuration instructions: Turn on the upper computer, search for the device and enter the device configuration interface, configure the "network parameters" first, it is recommended to use the DHCP function to avoid incorrect configurations that cause device IP exceptions (network segment errors, IP conflicts, etc.), and then configure the channel using the HTTP function, support 2 channels to configure HTTP client mode at the same time, here is an example to explain by GET requesting "Baidu" webpage (URL: empty, HEADER: Host: www.baidu.com, target domain name: www.baidu.com, target port: 80 , the local port is recommended to use a random port), the specific configuration is shown in the figure below:

CI 亿佰特网络配置助手 v3.4	- 🗆 X
《单 语言 关于	
本地IP: 192.168.0. 🗸 📿 搜索设备	网络设置 PORT1 PORT2
IP 网关 MAC:	
1 192.168.3.7 192.168.3.1 38-3B-2	链路参数 串口参数 高级设置 modbus 网关
	链路基本参数 个
	网络工作模式 HTTP 客户端 🗸 本地端口 0
	目标IP/域名 www.baidu.com 目标端口 502 🜒
	短链接开关 关闭 ✓ 短连接时间 0秒 ◆
<	HTTP参数 HTTP请求方式 GET ~
>>> 正在搜索设备 >>> 搜索设备完成,共搜索到1个设备	□ 不返回包头数据 HEADER
>>> 正在搜索设备	
>>> 搜索设备完成,共搜索到1个设备 >>> 正在恢复出厂设置	Host:www.baidu.com 🦨
>>> 恢复出厂设置成功 >>> 正在搜索设备	
>>> 搜索设备完成,共搜索到1个设备	
	▶ 复制参数 / お貼参数 > 导出配置 > 导入配置
	☐ 保存配置 (¹)重启设备 ○ 恢复默认参数
	□ 体付肌血 ○ 里伯咬田 ◎ 恢复款以多数

The request data is "/", use the serial port assistant to get the web page:

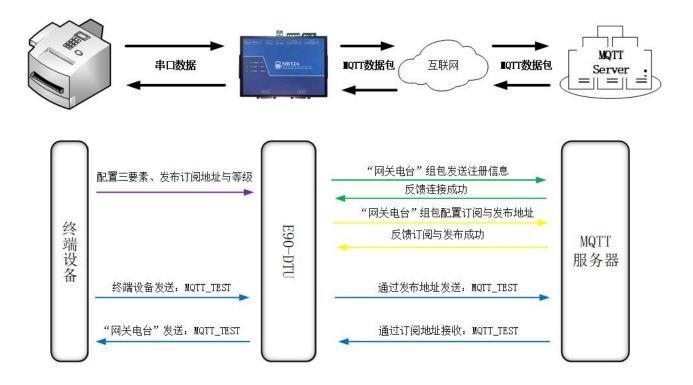


XCOM V2.6		_		\times
NTTP/1.1 200 OK	^	Port		
Accept-Ranges: bytes				
Cache-Control: no-cache		COM3: USB-S	SERIAL CH	(34C 🗸
Connection: keep-alive				
Content-Length: 9508		Baud rate	115200	\sim
Content-Type: text/html				
Date: Fri, 17 Jun 2022 03:48:01 GMT		Stop bits	1	~
P3p: CP=" OTI DSP COR IVA OUR IND COM "				_
P3p: CP=" OTI DSP COR IVA OUR IND COM "		Data bits	8	\sim
Pragma: no-cache		n	None	
Server: BWS/1.1		Parity	None	~
Set-Cookie: BAIDUID=AFDEDA8B33352FE045C560B03CEC0850:FG=1; expires=Thu, 31-Dec-37		0	C1	ose
23:55:55 GMT; max-age=2147483647; path=/; domain=.baidu.com		Operation	🧿 Cl	ose
Set-Cookie: BIDUPSID=AFDEDA8B33352FE045C560B03CEC0850; expires=Thu, 31-Dec-37				
23:55:55 GMT; max-age=2147483647; path=/; domain=.baidu.com		Save Data	Clear	Data
Set-Cookie: PSTM=1655437681; expires=Thu, 31-Dec-37 23:55:55 GMT; max-age=2147483647;				
path=/; domain=. baidu. com DATA		Hex 🗌	DTH	2
Set-Cookie: BAIDUID=AFDEDA8B33352FE05CABE44166990399:FG=1; max-age=31536000;		RTS	自 i	动保存
expires=Sat, 17-Jun=23 03:48:81 GMT; domain=.baidu.com; path=/; version=1; comment=bd		TimeSta	mp 100	٦
Traceid: 165543768104666744427776909494167371134	~			ms
Single Send Finiti Send Protocol Transmit Help				
T		^	Ser	1
			Ser	Id
			-2	- 1
		~	Clear	Send
Timing Cycle 1000 ms Open File		Send File	Stop 3	Send
			2 top	- unit
□ Hex Send □ Wordwrap 0% 【火爆全网	l II	点原子DS100	手持示波	器上市
* www.openedv.com S:1 R:10495 CTS=0 DSR=0 DCD=0	Cu	rrent time11	:48:08	

Instructions for POST, in the header data configured as a POST request, there is no need to configure the header of the data length separately (for example: Content-length: 2729), the device will automatically calculate the data length and group the packet to send, other header data needs to be manually configured, and support up to 128 bytes data configuration.

4.5.6 MQTT client

Support quick access to standard MQTT3.1.1 protocol servers (OneNET, Baidu Cloud, Huawei Cloud, user-built server types, etc.) and Ali cloud server. Support quality of service level configuration (Qos 0, Qos 1), support ultra-long text configuration, and facilitate better access to network service operators (server address, three elements, subscription and publishing addresses support up to 128 character configuration, Ali Cloud product password key 64 characters).



(1), To select the standard MQTT3.1.1, Baidu Cloud, OneNET, and Huawei Cloud configurations, you can refer to the following table to fill in the parameters:

Parameters	ParametersStandard MQTT3.3.1Baidu Cloud		OneNET			
Device name (Client ID)	Client ID	DeviceKey	Device ID			
User Name (Device name)	User Name	IoTCoreId/DeviceKe y	Product ID			
Password	Password	DeviceSecret	Device name/User			
(Device secret)	Password	DeviceSecret	Password			
PrductKey	Ali Cloud parameters, can be left blank					
Dublish tonio	MQTT publish topic address (dynamically generated by					
Publish topic	OneNET)					
Subscribe Topic	MQTT Subscribe Topic Address (dynamically generated by					
1		OneNET)				

[Note]

• Dynamic generation of topic address can use the same parameters to achieve the effect of data return, for example: OneNET publishes and subscribes to the same topic address: 123456, and data return can be achieved;

• Due to the adjustment of the MQTT platform (Baidu Cloud, Huawei Cloud, OneNET), the connection cannot be made after filling in the parameters, and the platform rules shall prevail;

Take the standard MQTT3.1.1 parameter filling as an example, as shown in the figure below:

 $(((\bullet)))$

平台选择	标准 MQTT 3.1.1 🗸 心跳包周期 120秒 🜩	
设备名 Client ID	Client ID	
用户名 Device name	USER NAME	
密码 Device secret	Password]
ProductKey	user ProductKey	
订阅主题	sub	Qos等级 0 ~
发布主题	pub	Qos等级 0 V

(2), Ali Cloud

It supports the use of Ali Cloud's "three elements" to directly connect to the server. To obtain the "three elements", as shown in the figure (only for demonstration cases, users need to use self-built parameters to connect):

三(一)阿里云	âI	【作台 华东2(上海) >	/							Q 搜索
← 公共实例		1 填写物联网平台满意度	问卷,说出您的心声,有机会	收获100元代金券	(点击进入)					
设备管理	^	物联网平台 / 设备管理						/		
产品		← DEV04	高线							
设备			YTE 查看 GlhuTU1yN 复制							DeviceSecret ******** 查看
分组		设备信息 Topic	c 列表 物模型数据	设备影子	文件管理	日志服务	在线调试	分组	任务	
任务		设备信息								
CA 证书		以 附 自 志								
规则引擎	\sim	产品名称	EBYTE				ProductKey		a1GlhuTU1y	N 复制
监控运维	\sim	节点类型	设备				DeviceName		DEV04 复制	U

Configure Topic for communication test:

三()阿里云	â I	作台 华东2 (上海) > 1		Q 搜索	明 工単	ICP 1
← 公共实例		③ 填写物联网平台满意度问卷,说出您的心声,有机会收获100元代金券 (点击进入)				
设备管理	^	総鉄阿平台 / 设备管理 / 西西 / 产品洋街				
产品		← EBYTE 0				
设备		ProductKey a1GihuTU1yN 氮化 设备数 4 前任答理	ProductSecret	查看		
分组		产品信息 Topic 类列表 功能定义 数据解析 服务端订阅 设备开发				
任务						
CA 证书		基础通信 Topic 物模 4 信 Topic 自定义 Topic	5			
规则引擎	\sim	定义 Topic 英				
监控运维	~	自定义 Topic 攝作权	現 拍	罰述	操作	
设备划归	~	/a1GlhuTU1yN/\$[deviceName]/user/1234 发布和	订阅 -		编辑 删除)e

Configuration theme description:

Select the corresponding product, click "Custom Topic" under the Topic class list (for details, please refer to the Alibaba Cloud documentation), click "Define Topic Class", configure the name as 1234 and grant publish and subscribe permissions (for realizing data return pass).

Configure the device connection parameters, as shown in the figure below (the left picture is the host computer, and the right picture is the webpage configuration):

{

}

```
"ProductKey": "a1GlhuTU1yN",
      "DeviceName": "DEV04",
      "DeviceSecret": "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Ali cloud server address: ProductKey.iot-as-mqtt.cn-shanghai.aliyuncs.com:1883
```

Subscribe and publish Topic: /a1GlhuTU1yN/DEV04/user/1234

可里云 EVO4	~ 心跳包周期	120秒 🗘				
EVD4						
					_	
EV04						
******	*****				_	
1GlhuTU1yN					_	
alGlhuTU1yN/DEV04/	/user/1234			Qos等级	0	~
alGlhuTU1yN/DEVO4/	/user/1234			Qos等级	0	~
	nnanananan 1GlhatV1yN a1GlhatV1yN/DEV04/	*******	nneederenneederenee 1Glaatulyn alglaatulyn/DEVO4/aser/1234	nnerenernerenenenener IGlatuiyn aiGlatuiyn/DEVO4/aser/1234	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Ali Cloud MQTT platform communication test:

XCOM V2.6	- T V
[2021-10-22 09:11:09.498]	
TX: EBYTE_ALIYUNN_MQT [2021-10-22 09:11:09.669]	- RX
RX: EBYTE_ALIYUNN_MQTT	

4.6 Channel port

Random Port:

TCP client, UDP client, HTTP client, MQTT client can configure the local port as 0 (use random local port), server mode cannot use random port, otherwise the client cannot establish the connection correctly (The device is not properly listening on the port).

Using a random port connection can quickly re-establish the connection when the device is accidentally disconnected from the server, preventing the server from rejecting the connection due to four waved incomplete. It is recommended to use a random port in client mode.

When the device configures the TCP client, HTTP client, and MQTT client mode in the AT, it will automatically configure a random port, which can be canceled by customization.

Static Port:

Device fixed port (factory default use: 8001-8002), TCP server mode device listens to the configured port, accepts the connection request from the client and establishes a connection for data communication, TCP client mode device initiates a connection request in fixed port.

Chapter 5 Advanced Features

5.1 Heartbeat package and registration package

5.1.1 Heartbeat package

In client mode, users can choose to send heartbeat packets and customize the heartbeat packet time. The heartbeat packet can choose network heartbeat packet and serial port heartbeat packet. It supports hexadecimal and ASCII code sending. This heartbeat packet is not MQTT heartbeat. It needs to be closed when using MQTT client mode. MQTT heartbeat can only set the "heartbeat period" in the "MQTT parameter configuration" column. The content of the MQTT heartbeat packet is restricted by the protocol and cannot be configured. It is recommended not to configure it for less than 60s. For example, the Ali cloud manual recommends using 120s.

Heartbeat packet sending mode:

- 1. The default is to turn off the heartbeat packet mode.
- Serial mode -> The device sends heartbeat content to the serial bus according to the set heartbeat time interval.
- Network port mode -> The device sends heartbeat content to the network port bus according to the set heartbeat time interval.

Customize the content of the heartbeat packet (support up to 40 bytes (ASCII) data, 20 bytes (HEX) data)

Customize the heartbeat packet sending time interval. When it is set to 0, the heartbeat packet function is turned off. When the value is greater than 0, the heartbeat packet function is turned on. When it is turned on, the range can be set: (1-65536) seconds, and the default value is 0.

5.1.2 Registration package

In the client mode, the user can choose to send the registration package and customize the registration package time.

The registration package supports the following modes:

- 1. The MAC address (OLMAC) is sent when the network establishes a connection with the device.
- 2. When the network establishes a connection with the device, the data of the custom

registration package (OLCSTM) is sent.

- 3. After the connection between the network and the device is established, each packet of data sent by the device to the network will be preceded by a MAC address (EMBMAC).
- 4. After the connection between the network and the device is established, each packet of data sent by the device to the network will be preceded by custom registration packet data (EMBCSTM).

Customize the content of the registration package (support up to 40 bytes (ASCII) data, 20 bytes (HEX) data)

[Note] It is recommended not to use special characters (such as "," "\" "/") when configuring the registration package. If you want to use it, it is recommended to use hexadecimal configuration.

5.2 Short connection

In client mode, short network connections are supported (this function is disabled by default). TCP short connections are mainly used to save server resource overhead, and are generally used in multi-point (multi-client) to one-point (server) scenarios.

The TCP short connection function is applied in the TCP Client mode. After the short connection function is turned on, it only requests to connect with the server when sending information. After the connection is successful, if the serial port does not receive data or the network port has no data to send and receive within the set time, the device will automatically disconnect.

When the short link hold time is set to 0, the short link function is disabled. When the setting range is (2-255) seconds, the short connection function is enabled, and the default hold time is 0 seconds (short connection is turned off).

5.3 Serial buffer cleaning

When the TCP connection is not established, the data received by the serial port will be placed in the buffer area. The serial port receiving buffer is 512 bytes. After the network connection is successful, you can choose to clear the serial port buffer or send the buffer through the network.

Enable: The device does not save the data received by the serial port before the connection is established.

Disabled: After the connection is established, the network will receive the data buffered by the serial port.

5.4 Modbus gateway

5.4.1 Simple Protocol Conversion

Convert Modbus RTU data to Modbus TCP data, or convert Modbus TCP data to Modbus RTU data, and realize the mutual conversion between Ethernet Modbus data and serial port Modbus data.

Simple protocol conversion can work in any mode (TCP client, TCP server, UDP client, UDP server, MQTT client), this gateway mode does not support multi-host operation. Please use "storage gateway" and "multi-host host mode" if need to use multi-host operation.

Simple protocol conversion configuration:

本地IP: 192.168.	0. ~ 🔍	发素设备	网络设置	PORT1 H	PORT2						
IP 192.168.3.7	网 关 192.168.3.1	MAC: 38-3B-2	链路参数 Modbus 参数 MODBUS网关 MODBUS RTU RTU<->TCP1	指令存储时间		K ~		RTU应答超时时间 RTU轮询间隔时间			4.
<	 , 共搜索到1 ⁻² 		- 預配置指令列 1 01.03.00					增加		删除	
>>> 正在恢复出厂 >>> 恢复出厂设置 >>> 正在搜索设备 >>> 搜索设备完成	设置 [成功 		》 复制参数	-	🚺 粘贴参数	1	▼导 言设备	出配置	【 ▲ 导 / 太复默认		参教

Modbus Poll and Modbus Slave software debugging: Software connection settings:

	< 🛅 🖳 🎒 几 05 06 15 16 17 22 23 TC 🤋	2 🛃 💡 🌾		Setup Display View Window Help
mopont	Connection Setup	2	Mbslave1	Connection Setup
= 1296: Err	Connection Modbus TCP/IP	ОК	ID = 1: F = 03 No connection	Connection OK
	Serial Settings	Cancel	Name	Serial Port Cance
	USB-SERIAL CH340 (COM4)	Mode RTU O ASCII	1	Serial Settings USB-SERIAL CH340 (COM11)
	115200 Baud 🗸	Response Timeout	2	115200 Baud V Mode III C ASCII
	8 Data bits 🧹	1000 [ms]	4	8 Data bits V Flow Control
	None Parity 🗸	Delay Between Polls	5	None Parity V DSR CTS RTS Toggle
	1 Stop Bit 🛛 V Advanced	20 [ms]	7	1 Stop Bit V [ms] RTS disable delay
	Remote Modbus Server		8	TCP/IP Server
	IP Address or Node Name			IP Address Port
192.	192.168.4.164	~		192.168.3.3 🗸 8886
elp, press F1	Server Port Connect Timeout 8886 3000 [ms]	● IPv4 ○ IPv6		Any Address IPv4 Ignore Unit ID IPv6

Software register reading and emulation configuration:

Poll menu selection Setup→Read/Write Definition

(ead/write	Dennition			
Slave ID:	1]		ОК
Function:	03 Read Ho	lding Regis	ters (4x)	✓ Cancel
Address:	0	PLC addr	ess = 40001	
Quantity:	5] [Poll	
Scan Rate:	1000] [ms]	011	Apply
Disable				
	Vrite Disabled	E.		
Disable	on error			Read/Write Once
View				
Rows	0			
• 10	020 0	50 01	00 O Fit to	o Quantity
Hide A	lias Columns	[PLC Addre	esses (Base 1)
Addres	s in Cell	l	Enron/Da	niel Mode
Request				
RTU 0	1 03 00 00 0	0 05 85 C9)	
ASCII 3	A 30 31 30 3	3 30 30 30	30 30 30 30 3	30 35 46 37 0D 0A

Slave menu selection Setup→Slave Definition

Slave Defini	tion		×
Slave ID:	1		ОК
Function:	03 Holding Register (4	x) ~	Cancel
Address n Dec	O Hex		
Address:	0 PLC addre	ess = 40001	
Quantity:	5		
View Rows 10	○20 ○50 ○10	00 O Fit to Quant	tity
Hide N		PLC Addresses (E	Base 1)
Error Simu			
Skip re	sponse	Insert CRC/LRC (Not when using	ng TCP/IP)
	[Ing] response beidy	Return exception	on 06, Busy

Communication demo:

	소료 11 0	5 06	15 16	17 22 23	IC	원.		Υ.	4		_			_		_	_	_					_
Mbpoll1			Con	nmunication	n Trat	ffic																	
x = 368: Err = 0: ID = 1: I	F = 03: SR =	= 1(E	xit	Cont	tinue			Clear			Save			Copy	(11	ι	.og		Stop on Error	Time sta	amp
Alias	00000	^	Rx:000	0113-01	7E	00	00	00	0D	01 0	3 (A 00	01	00	02	00	03	00	04	00	05		
	1		Tx:000	0114-01	7F	00	00	00	06	01 0	3 (00 00	00	05									
				0115-01											02	00	03	00	04	00	05		
	2			0116-01											~ ~								
	3			0117-01											02	00	03	00	04	00	05		
	4			0110-01											02	00	03	00	04	00	05		
	5			0120-01											01		00	00	• •	00	00		
			Rx:000	0121-01	82	00	00	00	OD	01 0	3 (00 A	01	00	02	00	03	00	04	00	05		
				0122-01																			
				0123-01											02	00	03	00	04	00	05		
				0124-01											~			~~	~ *				
				0125-01											02	00	03	00	04	00	05		
				0127-01											02	00	0.2	0.0	1202	200	0.5		
																00	03	00	04	00	05		
Madleus Clause Miledause	1		A. 000		0.5	00		00	010	01 0		A 00			02	00	03	00	04	00	05		
					00	00		00		01 0		A			02	00	03	00	04	00		- 🗆	0
Edit Connection Setu	up Display	View			0.5	00		00	0.0	01 0		A 00			02	00	03	00	04	00			0
Modbus Slave - Mbslave Edit Connection Setu	up Display	View	windo					00		01 0					02	00	03	00	04	00	-		>
Edit Connection Setu	up Display		windo	w Help								A 00			02	00	03	00	04	00	-	- 🗆	>
Edit Connection Setu Connection Setu Connection Setu Mbslave1	up Display		windo	w Help mmunicatic		affic		Clear			ave		Сору			Log	03		04 Time s		-	- 🗆	
Edit Connection Setu	up Display		Windon	w Help mmunicatio	on Tra	affic		Clear		S	ave		Сору			Log		0.			-	- 0	
Edit Connection Setu Definition Setu D	up Display		Window Co E Tx:00	w Help mmunicatic	on Tra Continu 03	affic Je 0A	00	Clear 01	00	S 02	ave 00		Сору			Log		0.			-	- 0	
Edit Connection Setu	up Display		Window Co E Tx:00 Rx:00	w Help mmunicatio at C	on Tra Continu 03 03	affic Je 0A 00	00	Clear 01 00	00 05	02 85	ave DO 29	03 0(Copy) 04	00	05	Log CF	24	0.			-	-	
Edit Connection Setu Edit Connection Setu Moslave1 = 1: F = 03	up Display		Window Co E Tx:00 Rx:00 Tx:00	w Help mmunicatio at C 0091-01 0092-01	on Tra Continu 03 03 03	affic Je 0A 00 0A	00 00 00	Clear 01 00 01	00 05 00	02 85 02	ave 00 29 00	03 0(Copy) 04	00	05	Log CF	24	0.			-	-	0
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Edit Connection Setu Def Def Def Def Def Def Def Def Def Def	up Display		Windoo E Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00	W Help mmunicatio at 0091-01 00092-01 00093-01 00095-01 00096-01	on Tra 03 03 03 03 03 03	affic Je 0A 00 0A 00 0A 00	00 00 00 00 00	Clear 01 00 01 00 01 00	00 05 00 05 00 05	02 85 02 85 02 85	ave 00 29 00 29 00 29	03 00	Copy 0 04 0 04	00	05	Log CF CF	24				-		
Edit Connection Setu Def Def Def Def Def Def Def Def Def Def	up Display		Window Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Tx:00 Tx:00 Tx:00 Tx:00	W Help mmunication at 0091-01 0092-01 0093-01 0095-01 0095-01 0095-01	on Tra 03 03 03 03 03 03 03	affic 0A 00 0A 00 0A 00	00 00 00 00 00 00 00	Clear 01 00 01 00 01 00 01	00 05 00 05 00 05 00	02 85 02 85 02 85 02 85 02	ave 00 29 00 29 00 29 00 29 00	03 00	Copy 0 04 0 04	00	05	Log CF CF	24				-	- 0	
Edit Connection Sett Mbslave1 = 1: F = 03 Name	up Display		Window Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Rx:00	w Help mmunication at 0091-01 0092-01 0093-01 0095-01 0095-01 0095-01 0095-01 0095-01 0095-01 0095-01 0095-01 0095-01	on Tra Continu 03 03 03 03 03 03 03 03	affic 0A 00 0A 00 0A 00 0A 00	00 00 00 00 00 00 00 00	Clear 01 00 01 00 01 00 01 00	00 05 00 05 00 05 00 05	02 85 02 85 02 85 02 85 02 85	ave 00 29 00 29 00 29 00 29	03 00 03 00 03 00 03 00	Copy 0 04 0 04 0 04 0 04	000000000000000000000000000000000000000	05	Log CF CF CF	24 24 24 24				-		
Edit Connection Setu Edit Connection Setu Moslave1 = 1: F = 03	up Display		Window E Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Tx:00 Tx:00 Tx:00	W Help mmunication at 0091-01 0092-01 0093-01 0095-01 0095-01 0095-01	on Tra O3 03 03 03 03 03 03 03 03 03 03	affic 0A 00 0A 00 0A 00 0A 00	00 00 00 00 00 00 00 00 00	Clear 01 00 01 00 01 00 01 00 01	00 05 00 05 00 05 00 05 00	02 85 02 85 02 85 02 85 02 85 02 85 02	ave 00 29 00 29 00 29 00 29 00 29 00	03 00 03 00 03 00 03 00	Copy 0 04 0 04 0 04 0 04	000000000000000000000000000000000000000	05	Log CF CF CF	24 24 24 24				-		
Edit Connection Sett	up Display		Window E Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Rx:00 Rx:00	w Help mmunicatio at 0091-01 0092-01 0093-01 0095-01 0095-01 0095-01 0095-01 0095-01 0095-01	on Tra O3 03 03 03 03 03 03 03 03 03 03 03	affic 0A 00 0A 00 0A 00 0A 00 0A 00	00 00 00 00 00 00 00 00 00 00	Clear 01 00 01 00 01 00 01 00 01 00	00 05 00 05 00 05 00 05 00 05	02 85 02 85 02 85 02 85 02 85 02 85	ave 00 29 00 29 00 29 00 29 00 29 00 29	03 00 03 00 03 00 03 00 03 00	Copy) 04) 04) 04) 04	000000000000000000000000000000000000000	05	Log CF CF CF CF	· 24 · 24 · 24 · 24 · 24				-		
Edit Connection Setu Def Def Def Def Def Def Def Def Def Def	up Display		 Window Co Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Rx:00 Tx:00 Tx:00 Tx:00 	w Help mmunication at 0091-01 0092-01 0093-01 0094-01 0095-01 0095-01 0095-01 0098-01 0099-01 0100-01	on Tra Continu 03 03 03 03 03 03 03 03 03 03 03 03 03	affic 0A 00 0A 00 0A 00 0A 00 0A	00 00 00 00 00 00 00 00 00 00 00	Clear 01 00 01 00 01 00 01 00 01 00	00 05 00 05 00 05 00 05 00 05 00	02 85 02 85 02 85 02 85 02 85 02	ave 00 29 00 29 00 29 00 29 00 29 00	03 00 03 00 03 00 03 00 03 00	Copy) 04) 04) 04) 04	000000000000000000000000000000000000000	05	Log CF CF CF CF	· 24 · 24 · 24 · 24 · 24				-		

5.4.2 Multi-host mode

Relatively simple protocol conversion can only have one Modbus master station, while the multi-host mode can access multiple Modbus TCP hosts at the same time. When multiple Modbus hosts access at the same time, the Modbus gateway will perform bus occupancy scheduling (RS-485 bus Only one request can be processed at a time, while the multi-host mode will sort and process according to the TCP requests, and other links will wait), thus solving the problem of bus conflicts (currently, in single-server mode, up to 9 Modbus TCP host connections are supported, and multiple Attention should be paid to the matching of the request interval and the timeout time, otherwise the transmission rate of the serial port is much lower than the transmission rate of the Ethernet, resulting in packet loss. If you need a quick response, it is recommended to use a "storage gateway"), only supports working in TCP server mode, and the slave can only be on the serial port, otherwise it cannot work normally.

As the number of hosts increases, the Modbus timeout should be increased accordingly. If multiple hosts need continuous high-speed requests, it is recommended to use "storage gateway", and it is recommended to configure "simple protocol conversion" when there are no multiple hosts.

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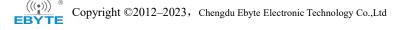
×地IP: 192.168		搜索设备	网络设置	PORT1 P	ORT2						
IP 192.168.3.7	网关	MAC:	链路参数	串口参数	高级设置	nodł	ous网关				
192.100.3.7	192.100.3.1	30-30-2	- Modbus 参数		Ar also 1 m 144 - 15						
			MODBUS网关		多主机模式	~		RTU应答超			E
			MODBUS RTU	省令存储时间	200秒	\$	MODBUS	RTU轮询间	隔时间	200毫秒	4
			RTU<->TCP协	议转换	开启	~					
			预配置指令列	刘表							
									增加	删	4
		>	1 1 1						「眉川」	AGE	T.4
志: > 正在搜索设 > 搜索设备完(> 正在搜索设 > 正在搜索设 > 正在恢复出)	备 成,共搜索到1 ⁻ 备 成,共搜索到1 ⁻	清空日志 个设备	1 01.03,00.						"增/山	AGK.	14

Refer to "Simple Protocol Conversion" for software configuration and register configuration, and open multiple Modbus Poll software at the same time (3 channels as an example, and a single server model can support up to 9 channels).

📲 Modbus Poll - Mbpoll1	- 🗆 X	📓 Modbus Slave - Mbslave1	- 🗆 ×
File Edit Connection Setup Func	ctions Display View Window Help	File Edit Connection Setup Display View Win	ndow Help
D 📽 🖬 🚳 🗙 🗖 🗒 🏛 🎝	1 05 06 15 16 17 22 23 TC 🖳		
Mbpoll1 Tx = 156: Err = 0: ID = 1: F = 03: Alias 0000 0 1 2 3 4 5 5 5		Mbslave1 Image: Constraint of the second secon	
For Help, press F1. [19	92.168.4.163]: 8887	For Help, press F1. Port 7: 115200-8-N	I-1
🛍 Modbus Poll - Mbpoll1	X	합 Modbus Poll - Mbpoll1	- 🗆 🗙
	ctions Display View Window Help	File Edit Connection Setup Prections Display	View Window Help
	1 05 06 15 16 17 22 23 TC 🖳	🖣 🗅 🖨 🖬 🎒 🗙 🗂 🖳 🏛 🕺 🖊 05 06 15	16 17 22 23 TC 🖳 🖺
Mbpoll1 Tx = 106: Err = 0: ID = 1: F = 03: Alias 0000 0 1 2 3 4	Poll 2	Mbpolit Image: Constraint of the second	Poll 3
For Help, press F1.	92.168.4.1631: 8887	For Help, press F1. [192.168.4.163]: 88	387

5.4.3 Storage gateway

The storage gateway not only arbitrates the bus data, but also stores repeated read instructions. When different hosts request the same data, the gateway does not need to ask the RTU device register status multiple times, but



directly returns the data cached in the storage area, which greatly To a certain extent, the multi-host request processing capability of the gateway is improved, and the time consumed by the entire request process is also shortened. Users can customize the polling interval of the storage area instructions and the instruction storage time according to their needs.

☑ 亿佰特网络配置助手 v3.4 菜单 语言 关于	- D ×
本地IP: 192.168.0. > Q 搜索设备	网络设置 PORT1 PORT2
IP 网关 MAC: 1 192,168.3.7 192,168.3.1 38-38-2	链路参数 串口参数 高级设置 modbus 网关
1 192.108.3.7 192.108.3.1 38-38-2	Modbus 参数
	MODBUS网关 存储型网关 V MODBUS RTU应答超时时间 3000毫秒 🗣
	MODBUS RTU指令存储时间 200秒 ◆ MODBUS RTU轮询间隔时间 200臺秒 ◆
	RTU<->TCP协议转换 开启 V
	預配置指令列表
< >	,,,,,,删除
日志: 《 清空日志 >>> 正在搜索设备 >>> 搜索设备完成, 共搜索到1个设备 >>> 正在搜索设备 >>> 搜索设备完成, 共搜索到1个设备 >>> 正在恢复出厂设置	1 01,03,00,00,00A
/// 在世际爱口师设置成功 >>> 恢复出厂设置成功 >>> 正在搜索设备 >>> 搜索设备完成,共搜索到1个设备	 ▶ 复制参数 ▶ 复制参数 ▶ 复制参数 ▶ 有力配置
	☞ 复制参数 ☑ 柏贴参数 ❤ 守工配置 ▲ 守人配置 ■ 保存配置 ()重启设备 ② 恢复默认参数

As an optimization of multi-host request performance, the storage gateway can only work in the TCP server mode, which improves the response speed of the network side.

Features:

- (1) The gateway has a 2K cache for storing instructions and returning results (reading 10 holding registers as an example, about 67 instructions and returning results can be stored);
- (2) The RTU response timeout automatically clears the cache to ensure the real-time and authenticity of the data;
- (3) The polling interval can be customized, 0-65535ms (default: 200ms);
- (4) The gateway will poll the RTU device according to the storage time of the command used for configuration. If the MODBUS host does not query the command again during the storage time, the gateway will automatically delete the storage command to release the cache;
- (5) The first command and control command (05, 06, 0F, 10 function codes) will directly access the RTU device;
- (6) Only support query result storage of 01, 02, 03, 04 Modbus function codes;

5.4.4 Configurable Gateway

The gateway automatically polls the RTU device registers according to the pre-configured MODBUS commands (only supports the configuration of MODBUS read commands), and the commands in the non-storage

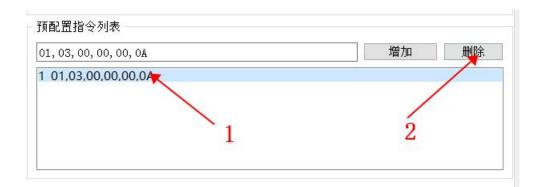
table will directly operate the RTU device, and the frequently read commands can be stored in the gateway in advance, which can shorten the Response time (command to query configuration), the data will not be sent directly to the server and will only be returned after the request of the Modbus host, which is similar to the use method of "simple protocol conversion". If you need to automatically upload the data to the server, please select "automatic upload". Due to the above characteristics, the serial port side of the configurable gateway can only be connected to the Modbus slave station.

链路参数 串口参数 高级设置 modbus 网关 Modbus 参数 MODBUS 网关 可配置网关 ∨ MODBUS RTU应答超时时间 3000毫秒 MODBUS RTU指令存储时间 200秒 ♥ MODBUS RTU轮询间隔时间 200毫秒 RTU<->TCP协议转换 开启 ∨	
MODBUS RTU指令存储时间 200秒 ● MODBUS RTU轮询间隔时间 200毫秒 RTU<->TCP协议转换 开启 ✓ 预配置指令列表 ////////////////////////////////////	
RTU<->TCP协议转换 开启 ~ 预配置指令列表 	\$
预配置指令列表 	\$
, , , , , , 增加 删除	
1 01,03,00,00,0A	×
▶ 复制参数	

Instructions storage instructions (increase, instruction errors and format errors cannot be added):

预配置指令列表 01,03,00,00,00,0A 4			增加	删除
1 01,03,00,00,00,0A	-3^{1}	2		

Instruction storage instructions (delete):



5.4.5 Automatically upload

In the client mode (TCP client, UDP client, MQTT client, HTTP client) the gateway will automatically poll the instructions stored in the instruction table and upload them to the server. You can choose the feedback format (Modbus RTU format or Modbus TCP format) according to your needs.) and command polling interval (0-65535ms).

Instruction pre-storage refers to "Configurable Gateway - Instructions for Instruction Storage", and automatically uploads the host computer/webpage configuration:

TCP client demo (Modbus RTU format):

网络设置	数据日志	NetAssist V5.0		Edit Connectio	n Setun Displ	ay View Windo	w Help #
(1)协议类型		NEWSSIST ¥ J.U.				ay them thinde	n noip = o
TCP Server 💌	[2022-01-08-13-1	51:34.628]# RECV HEX 1			E 8 4:		
(2)本地主机地址	192.168.4.163		I = 1.1	- = 03			
192.168.4.100	01 03 02 00 01			Name	00000	Name	00010
,	L2022-01-08 13: 192.168.4.163 :	51:39.669]# RECV HEX 1 81319)		Name	00000	IName	
(37 本地主句)病口	01 03 02 00 01		0		1		0
10000			1		0		0
美闭			2		0		0
			3		0		0
接收设置	1		4		0	1	0
C ASCII @ HEX			5		0		0
▶ 按日志模式显示	<		6		0		0
□ 接收区自动换行			7		0		0
□ 接收数据不显示			8		0		0
□ 接收保存到文件							
自动滚屏 清除接收			9		0		0
发送设置	-						
≪ ASCII € HEX							
▼ 转义符指令解析 ①							
「自动发送附加位	1						
「打开文件数据源		断开↓↓清除	1 清除				
「循环周期 300 ms	01234567\r\n		10.55				
快捷指令 历史发送			发送				
MINING MINING	<u></u>						

TCP client demo (Modbus TCP format):

	网络调试助手		₩ - □ ×	II Mo	dbus Slave - [Mbslave1]		- 🗆	×
网络设置 (1)协议类型	数据日志	NetAssist V	<u>'5.0.2</u> ♥ ♀	and the second second second	the second s	ection Setup D	Display View V	Vindow Help _	8 ×
TCP Server	[2022-01-08 14:03:59		EX FROM	ID = 1:	Contract of the second s	<u></u> = 8 h-			
(2)本地主机地址 192.168.4.100 <u>▼</u>	00 00 00 00 00 00 05 01	1 03 02 00 01	EX FROM		Name	00000	Name	00010	
(3) 本地主机端口		A second of the second second second		0		1		0	
8886	[2022-01-08 14:04:10		EX FROM	1		0		0	
· 美闭	192.168.4.163 :44508			2		0		0	
	00 00 00 00 00 05 0	1 03 02 00 01		3		0		0	
接收设置				4		0		0	
C ASCII C HEX				5		0		0	
☑ 按日志模式显示 ☑ 接收区自动换行	<			6		0		0	
□ 接收数据不显示				7		0		0	
□ 接收保存到文件				8		0		0	
自动滚屏 清除接收				9		0		0	
发送设置 ・ ASCII ・ HEX レ 转义符指令解析 ① 厂 自动发送附加位	数据发送 ↓ ◆断开	1 54	₩ 1.清除						
 □ 打开文件数据源 □ 循环周期 300 ms 快捷指令 历史发送 	01234567\r\n		发送	<					>
☞ 发送 76/0	RX:3532	TX:0	复位计数	For Help	o, press F1.	Por	t 7: 115200-8-N-	1	

5.5 Firmware upgrade

Users can upgrade the firmware of the device through the "亿佰特网络配置工具".

5.5.1 UDP upgrade

Step 1: Open the "亿佰特网络配置工具", and select "Device Upgrade Assistant" under the "Menu" option;

E 亿佰特网络配置助手 v	3.0	
菜单 语言 关于		
设备升级助手		
串口升级助手 00	· ~	
设备ID	IP	网关
6		

Step 2: Select the firmware to be used, which needs to be obtained from the "Related Downloads" of the corresponding product details on the official website (www.cdebyte.com). The demo firmware is not provided on the official website.

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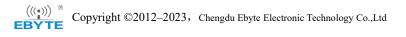
			► 选择圆件	Q 搜索设备	升级		Q 搜索设备
	设备ID	P	MACIRI	「日本の目」	- /13K	() () () () () () () () () () () () () (牛类型
	3 选择图件						
		HATSH - MINKS			ō	○ 在国	件中搜索
	组织▼ 新建文件夹						88 • 0
	101-0-000	オ ^ 名称	^	修改日期	突	및	大小
	CONTRACTOR DO	-	nware code t1.0.ebin	2022/5/7 13:33	EB	IN 文件	116
	International State		nware code t1.1.ebin	2022/5/7 15:18		IN 文件	116
	100		mare code t1.3.ebin	2022/5/9 11:19		IN 文件	116 8
	A REPORT OF THE		nware_co. 1.4.ebin	2022/5/12 11:10	EB	IN 文件	116 1
	- Designer	tes 1	t.ebin	2022/5/13 16:47	EB	IN 文件	119 1
	- Carlos						
1	1 anna						
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-							
-	100 FE						
	10 FEAT						
_	100						
	a 107			0			
-	107 178 178			0			
	2 107 2 78 2 10 2 10 2 10 2 10 2 10 2 10 2 10 2 10	Vi lant dia		0		ahia (* ahia	2)
	2 107 2 78 2 10 2 10 2 10 2 10 2 10 2 10 2 10 2 10	V): testebin		0	~	epin.(*.ebi 打开(O	

Step 3: Click "Search Device", the device list will display the currently found device, click "Stop Search".

设备ID		IP	网关	MAC地址	模块型号	版本	固件类
	🔝 设备网	络升级助手				-	
	5	-			📃 🐚 选择固件	🔍 停止搜索	日升級
		设备ID	IP		MAC地址	固件非	+
	1	0	192.168.4.	163	38-3B-26-3E-43-36		
	2	0	192.168.3.1	158	84-C2-E4-36-07-B7		

After selecting the device to be upgraded, click Start to upgrade, and wait for the host computer to display that the upgrade is complete.

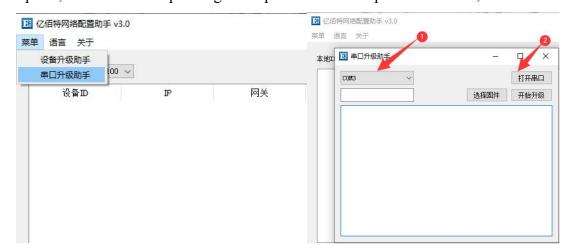
设备	🔝 设备网络	各升级助手				件类型
	fTE产品资	91 —		51/1+ 🕒 选择固件	🔍 搜索设备 🛛 📄 开始引	日級
		设备ID	IP	мас地址	固件类型	-
	1	0	192.168.4.163	38-3B-26-3E-43-36		
	2	0	192.168.3.158	84-C2-E4-36-07-B7		
(2佰特网络) (语言)	配置助手 v3.0 关于					- 0
语言 HIP: 192.	关于 168.3.100 、					🔍 搜索设
语言 #IP: 192.	×Ŧ				🔾 搜索设备 📄 开始升	Q 搜索设 × 件类型
语言 HIP: 192.	关于	接升级助手 设备ID	IP	HEIN MAC地址		Q 搜索设 × 件类型
语言 #IP: 192.	关于 166.3.100 100 100 1	溶升级助手 没替ID 0	192.168.4.163	масжени 38-38-26-3Е-43-36	🔾 搜索设备 📄 开始升	Q 搜索设 × 件类型
语言 HIP: 192.	关于	接升级助手 设备ID	IP	HEIN MAC地址	🔾 搜索设备 📄 开始升	Q 搜索设 × 件类型



5.5.2 Serial upgrade

Only channel 1 (that is, serial port 1, which can use RS232 interface/RS485 interface/RS422 interface) supports the use of serial port for upgrading. When the network upgrade fails or the network environment is complicated, it is recommended to use the serial port for upgrading;

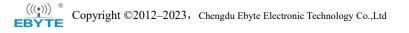
Step 1: Make sure the device is powered off and connect to serial port 1 correctly; Step 2: Open the "亿佰特网络配置工具", select "Serial Port Upgrade Assistant" under the "Menu" option, select the corresponding serial port and click "Open Serial Port";



Step 3: Select the firmware to be used, which needs to be obtained from the "Related Downloads" of the corresponding product details on the official website (www.cdebyte.com). The demo firmware is not provided on the official website;

名 亿佰特网络配置助手 v3.0					- 0	1
¹ 单 语言 关于						
本地IP: 192.168.3.100 ~					2. 技	縤设
1 串口升级助手	- 🗆 🗙	MAC地址	模块型号	版本	固件类型	2
CO N13 ~	打开串口 选择固件 开始升级					
3 选择固件						×
← → ~ ↑			~	ひ 2 在日	副件 中搜索	
组织▼ 新建文件夹			2)III 🔹 🔲	0
NB183串口服务器项目资料	^ 名称	^	修改日期	类型	大小	
玄 例	firmware code	t1.0.ebin	2022/5/7 13:33	EBIN 文件	116 KB	
国件			2022/5/7 15:18	EBIN 文件	116 KB	
OneDrive	irmware_code	_t1.3.e in	2022/5/9 11:19	EBIN 文件	116 KB	
	firmware_code	.4.ebin	2022/5/12 11:10	EBIN 文件	116 KB	
🛄 此电脑	test.ebin		2022/5/13 16:47	EBIN 文件	119 KB	
🧊 3D 对象						
📑 视频						
≥ 图片						
🖹 文档						
➡ 下载						
♪ 音乐					3	
三 桌面						
🏪 Windows (C:)						
🚵 ದುಖ್	*					
						_

Step 4: Click "Start Upgrading", press the button Reload of NB124ES and then turn on the power of the device, wait for the firmware upgrade to complete, click "Cancel" to end the serial port





upgrade;

1月 串口升级助手	_		×	B 串口升级助手	2 - 2	
C0M3 ~		关闭	串口	сожз 🗸		关闭串口
试资料/固件/test.ebin	选择固件	开始	升级	试资料/固件/test.ebin	选择固件	取消
				usart->TX:106		
				usart=>TX:107 usart=>TX:108		
				usart=>TX:109		
				usart->TX:110		
				usart=>TX:111 usart=>TX:112		
				usart=>TX:112		
				usart->TX:114		
				usart->TX:115		
				usart=>TX:116		
				usart=>TX:117		- 1
				usart=>TX:118 usart=>TX:119		
				usart-/IA.119	医肝病病	





The final interpretation right belongs to Chengdu Ebyte Electronic Technology Co., Ltd.

Revision History

Version	Revision date	Revision instruction	Maintainer
1.0	2022-11-14	Initial version	LYL

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$\underbrace{ \begin{pmatrix} (((\bullet)) \end{pmatrix} \\ \bullet \end{pmatrix} }^{((\bullet))}$ Chengdu Ebyte Electronic Technology Co.,Ltd.

