

Wireless Modem

User Manual



NB144ES Four Serial Ports Serial Server User manual

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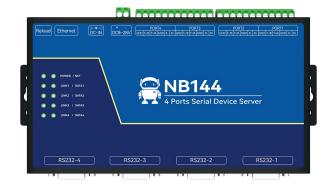
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1 Introduction

NB144ES is a 4-way serial port server that supports POE power supply. It integrates the TCP/IP protocol stack inside, which can realize the two-way transparent transmission of data from the 4-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.

1.1Features

- 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 receiving;
- Support Phoenix terminal or DC head power supply, DC 8-28V wide voltage input, support reverse polarity protection;
- Support terminal interface (RS485 /RS422) and standard DB9 interface (RS232);
- ♦ The baud rate supports 2400 ~ 115200 bps, and supports multiple verification methods;
- Support sending of various registration packets and heartbeat packets, such as connection sending M AC, connection sending customization, etc.;
- Support 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 ;
- 4 -way server mode can be turned on at the same time, supporting 12 clients to dynamically allocate and access, and a single server supports 13 clients to access,
- DP server mode that supports 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 a multi-host mode of one question and one answer;
- Support MQTT gateway function, fast access to Aliyun and standard MQTT3.1.1 servers (OneNET, Baidu Cloud, Huawei Cloud, etc.);
- Support Modb us 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 two request methods : G ET and P OST
- can use 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;

2 Quick Start

2.1 Hardware List

1.laptop with RJ45 network port.

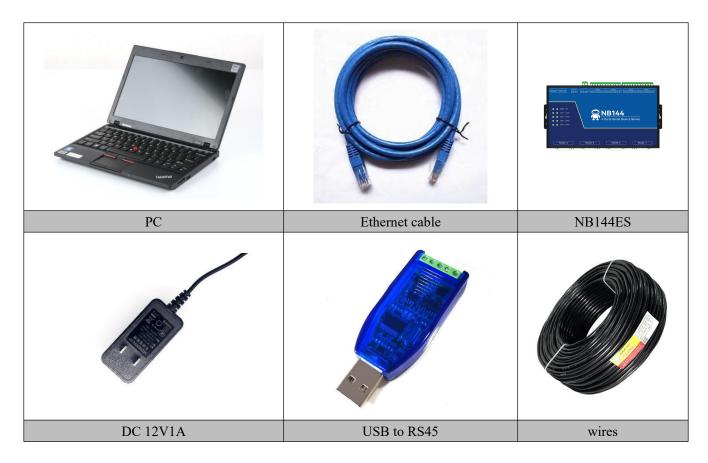
2.NB1 44 serial port server.

3.One DC12V 1A power adapter (not necessary if there is a POE switch).

4.a network cable.

5.One USB to RS485 serial cable.

6. The specific preparation of hardware equipment is shown in the following:



[Note] This chapter only uses one RS485 interface for demonstration, and the other interfaces can use the corresponding USB converter.

2.2 Software

NB144ES configuration tool <u>download</u> Serial Debug Assistant- XCOM <u>download</u>

Network debugging assistant TCP/IP, download



[Note] User can use other test tools to do test, and the operation steps are similar.

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 4 corresponds to port 8004. For details, see the chapter " Channel and Serial Port Correspondence ".

2.3.1 Connecting Hardware



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

2. Use a USB to RS485 serial cable to connect the USB port of the computer to any RS 4 85 port of the serial server ;

3. Use the power adapter (DC 8 -28V) to connect the power supply to the device, and observe whether the indicator light is normal after power on , and 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 enable users to quickly 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 N B1 44 serial port server equipment are shown in the table below.

project	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
Local port for channel 1	8 001
Serial baud rate	1 15200
Serial 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.

😰 网络连接	📱 以太网 2 状态	🔋 以太网 2 属性	Internet 协议版本 4 (TCP/IPv4) 属性	×
← → ∽ ↑ 😰 > 控	常规	网络 共享	常规	
组织 ▼ 禁用此网络设 以太网 2 HUAWEI-GB3N Realtek PGIe G	连接 IPv4 连接: IPv6 连接: 媒体状态:	连接时使用: 掌 Realtek PCIe GbE Family Contro	如果网络支持此功能,则可以获取自动指 络系统管理员处获得适当的 IP 设置。 〇 自动获得 IP 地址(Q)	砧的 IP 设置。否则,你需要从网
$\langle \cdot \rangle$	持续时间:	此连接使用下列项目(O):	●使用下面的 IP 地址(S):	
λ	速度:	☑ ☑ ☑ Microsoft 网络客户端☑ ☑ ☑ ✓ Ø	IP 地址(l):	192.168.3.100
	详细信息	🗹 🐺 Npcap Packet Driver (NPCA)	子网掩码(<u>U</u>):	255 . 255 . 255 . 0
		 ✓ [●] OoS 数据包计划程序 ✓ ▲ Internet 协议版本 4 (TCP/IPv4) 	默认网关(D):	192 . 168 . 3 . 1
	活动 字节: ●属性(P)	 Microsoft 网络适配器多路传送器 Microsoft LLDP 协议驱动程序 ✓ Internet 协议版本 6 (TCP/IPv6) 	 ● 自动获得 DNS 服务器地址(B) ● 使用下面的 DNS 服务器地址(E): 首选 DNS 服务器(P): 备用 DNS 服务器(A): □ 退出时验证设置(L) 	· · · · · · 高级() 确定 取消
3 个项目 选中 1 个项目	L.			

2.3.3 Turn off the computer firewall

	0.5M				
_	1 主页	 ← = 			音和网络保护 ^{會可以访问你的网络} 。
3	直接设置の			902/(10002P31	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
更	新和安全	6 0	主页 病毒和威胁防护	8 Microsoft De	efender 防火墙使用的设置可能会使你的设备不安全。
0	Windows 更新	8	帐户保护	还原设置	
<u> ra</u>	6 传递优化	619	防火墙和网络保护		
			应用和浏览器控制		
0	Windows 安全中心		设备安全性	1。 域网络	
$\overline{\uparrow}$	备份	-		防火墙已关闭。	
		~	设备性能和运行状况	打开	
O	9 疑难解答	AB4	家庭选项		
ධ	1 恢复				
				≌ 专用网络	(使田中)
\odot) 激活			防火墙已关闭。	
ሐ	查找我的设备			的人自己人的。	
<u></u>		1		打开	
18	开发者选项				
8=8	Windows 预览体验计划				
68	9 Windows から314 初日17 次月			□ 公用网络	1 · · · · · · · · · · · · · · · · · · ·
				防火墙已关闭。	
				打开	

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

Windows 安全中心

2.3.4 Open the "Serial Debug Assistant"

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

XCOM V2.6		
	Port	
	COM3:USB	-SERIAL CH34 $ m Q$ \sim
	Baud rate	115200 ~
	Stop bits	1 ~
	Data bits	8 ~
	, ity	None ~
	Operation	🔵 Open
	Save Dat	a Clear Data
	Hex	🗌 DTR
	T RTS	🗌 自动保存
Single Send Multi Send Protocol Transmit Help	☑ TimeSt	amp 100 ms
		Send
		↓ Clear Send
Timing Cycle 1000 MS	en File Send File	Stop Send
□ Hex Send □ Wordwrap 0% 【火	爆全网】正点原子DS10	0手持示波器上市
🔅 - www.openedv.com S:0 R:0	Current time1	5:19:02

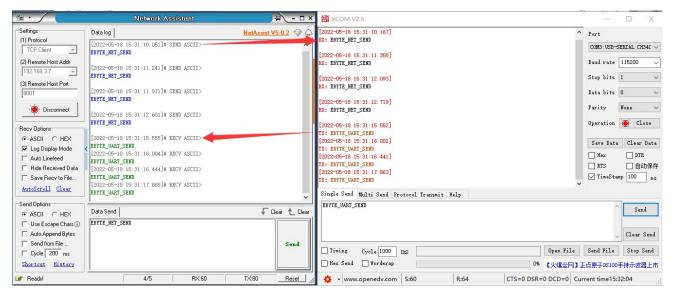
2.3.5 Open network assistant

		Network /	Assistant		₩ - D
Settings (1) Protocol TCP Client (2) Remote Host Addr (192.168.3.7 V	Data log	/		<u>NetAssist</u>	<u>v5.0.2</u> 🗇 2
(3) Remote Host Port 8001 Connect Recv Options ASCII					
AutoScroll Clear Send Options ASCII	Data Send			Ł	Clear 🛧 Clea
Auto Append Bytes Send from File					Send
Cycle 200 ms					

Select the "TCP client " mode, configure the remote IP as "1 92.168.3.7 ", and configure the remote port as "8 001 ", as shown in the figure below:

2.3.6 Send and receive data test

Click the [Send] button on the "Network Debug Assistant " and " Serial Port Debug Assistant " respectively to realize the transparent transmission of network and serial port data, as shown in the figure below.

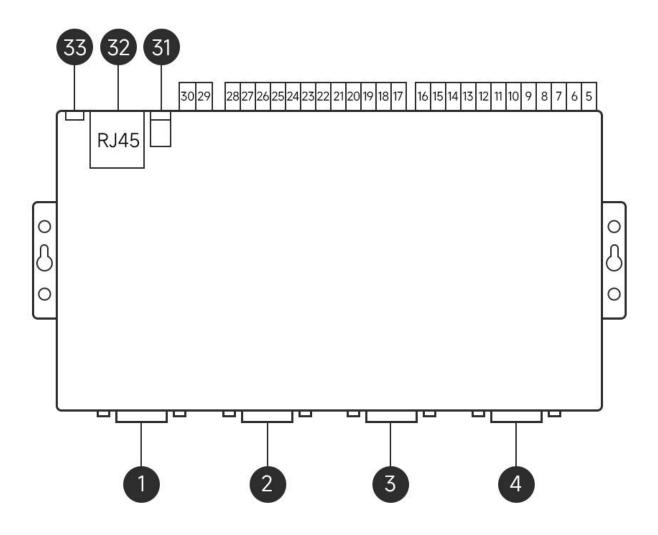


3 Parameters

3.1 Technical parameters

project	interface	illustrate	
	Crimp terminal	DC 8 \sim 28 Power supply, used when not available;	
nowon gunnly		Crimp terminal: 5.08 mm Phoenix terminal;	
power supply	D C female	D C female head: straight plug-in round hole, outer diameter	
		5.5mm, inner diameter 2.0 mm;	
Network port	RJ45	10M	
	Channel 1 to	Interface 1 (RS485, 3.81mm Phoenix terminal, support isolation);	
serial port	Channel 4	Interface 2 (RS232, standard RS232 line sequence D B9 female);	
		Interface 3 (RS 422 , 3.81mm Phoenix terminal, support isolation);	
Operating mode	TCP Server (default)	, TCP Client, UDP Server, UDP Client, HTTP Client, MQTT Client	
Network protocol	TCP/IP, UDP, MQT	Г, HTTP, IPv4, I CMP, APR, D HCP, D NS	
IP acquisition method	DHCP, static IP (def	ault)	
DNS	Support, address can	be configured	
configuration method	Parameter configura	tion host computer, AT command	
IP address	192.168.3.7 (custom	izable)	
local port	Channel 1~ 4 : 8 001-800 4 (can be customized)		
subnet mask	255.255.255.0 (customizable)		
gateway	192.168.3.1 (customizable)		
Serial cache	512 Bytes		
Serial packaging mechanism	512 Bytes		
Serial baud rate	2400 ~ 115200 bps (default 115200)	
data bit	8		
stop bit	1 (default), 2		
Check Digit	None (default), Odd	, Even	
installation method	positioning hole		
Product Size	1 98 x 108x26.5mm (LxWxH)		
product weight	5 30 g ± 5 g		
Working temperature and humidity	-40 \sim +85°C, 5% \sim 95%RH (no condensation)		
storage temperature and humidity	$-40 \sim +105$ °C, 5%	$\sim 95\%$ RH (no condensation)	

3.2 Interface Description



serial number	name	Function	illustrate
1	R S232-4	Serial port 4 -RS232	Standard DB9 female, 2 -TXD, 3 -RXD, 5-
1	К 5252-4	interface	GND
2	D 5222 2	Serial port 3 -RS232	Standard DB9 female, 2 -TXD, 3 -RXD, 5-
2	R S232-3	interface	GND
2	D 6222 2	Serial port 2 -RS232	Standard DB9 female, 2 -TXD, 3 -RXD, 5-
3	R S232-2	interface	GND
4	R S232-1	Serial port 1 -RS232	Standard DB9 female, 2 -TXD, 3 -RXD, 5-
4	K 5252-1	interface	GND
5	DC422 1 D	Serial port 1-RS422	2.91
5	RS422-1-R+	interface-R+	3.81mm Phoenix terminal
6	DC422.1 D	Serial port 1-RS422	2.81 mm Dhaanin taminal
6	RS422-1-R-	interface-R-	3.81mm Phoenix terminal
7	GND	Serial port 1 ground	3.81mm Phoenix terminal

		terminal	
8	RS422-1-T+/A	Serial port 1-RS422 interface-T+ Serial port 1-RS485 interface A	3.81mm Phoenix terminal
9	RS422-1-T-/B	Serial port 1-RS422 interface-T- Serial port 1-RS485 interface B	3.81mm Phoenix terminal
10	GND	Serial port 1 ground terminal	3.81mm Phoenix terminal
11	RS422-2-R+	Serial port 2-RS422 interface-R+	3.81mm Phoenix terminal
12	RS422-2-R-	Serial port 2-RS422 interface-R-	3.81mm Phoenix terminal
13	GND	Serial port 2 ground terminal	3.81mm Phoenix terminal
14	RS422-2-T+/A	Serial port 2-RS422 interface-T+ Serial port 2-RS485 interface A	3.81mm Phoenix terminal
15	RS422-2-T-/B	Serial port 2-RS422 interface-T- Serial port 2-RS485 interface B	3.81mm Phoenix terminal
16	GND	Serial port 2 ground terminal	3.81mm Phoenix terminal
17	RS422-3-R+	Serial port 3-RS422 interface-R+	3.81mm Phoenix terminal
18	RS422-3-R-	Serial port 3-RS422 interface-R-	3.81mm Phoenix terminal
19	GND	Serial port 2 ground terminal	3.81mm Phoenix terminal
20	RS422-3-T+/A	Serial port 3-RS422 interface-T+ Serial port 3-RS485 interface A	3.81mm Phoenix terminal
twenty one	RS422-3-T-/B	Serial port 3-RS422 interface-T- Serial port 3-RS485 interface B	3.81mm Phoenix terminal
twenty two	GND	Serial port 3 ground terminal	3.81mm Phoenix terminal
twenty	RS422-4-R+	Serial port 4-RS422	3.81mm Phoenix terminal

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three		interface-R+	
twenty	RS422-4-R-	Serial port 4-RS422	3.81mm Phoenix terminal
four	K5422-4-K-	interface-R-	
25	GND	Serial port 4 ground	3.81mm Phoenix terminal
	GILD	terminal	
		Serial port 4-RS422	
26	RS422-4-T+/A	interface-T+	3.81mm Phoenix terminal
20	K3422-4-17/A	Serial port 4-RS485	
		interface A	
		Serial port 4-RS422	
27	27 RS422-4-T-/B	interface-T-	3.81mm Phoenix terminal
27		Serial port 4-RS485	5.8111111 Phoenix terminar
		interface B	
28	GND	Serial port 2 ground	3.81mm Phoenix terminal
20	UND	terminal	
29		Negative pole of DC 8-28	DC 8 -28 V, 5.08 mm Phoenix terminal;
29	-	V	DC 8-28 V, 5.08 min Phoenix terminal,
30	+	Positive pole of DC 8-28	DC 8 -28 V, 5.08 mm Phoenix terminal;
50	Т	V	DC 8-28 V, 5.08 mill Phoenix terminal,
			DC 8-28V ;
31	DC -IN	DC power input	Outer diameter 5.5mm , inner diameter 2.0 mm
			in-line round hole;
32	Ethernet _	Ethernet interface	Standard R J45 Ethernet interface
33	re load	factory reset button	After long pressing for 5s, N ET is always on
33 re load			for 5s, and the device is restored to factory

Warning: Only one of the two power supply ports can be used in one time.

3.3Indicator light description

\bigcirc	POWER/NET
	LINK1/DATA1
	LINK2/DATA2
	LINK3/DATA3
	LINK4/DATA4

Label	Function	illustrate
POWER	Power Indicator	Connect to the power supply, light up;
N ET	Running lights	Not connected to the network cable: 1 00 ms on, 9 00 ms off, flashing periodically; Connecting the network cable: 1s is a cycle of flashing;

		No link connection: the indicator light is off;
LINK 1	Channel 1 Status	The link connection is successful: the indicator light is
LIINK I	Indicator	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;
		No link connection: the indicator light is off;
LINK2	Channel 2 status	The link connection is successful: the indicator light is
LINKZ	indicator	always on;
DATA2 Channel 2 status Data sending and receivin	UDP mode: the indicator light is always on;	
DATA2	Channel 2 status	Data sending and receiving: flashes when the network or
DAIAZ	indicator	serial port sends and receives data;
		No link connection: the indicator light is off;
LINK3	Channel 3 Status	The link connection is successful: the indicator light is
LINKS	Indicator	always on;
		UDP mode: the indicator light is always on;
DATA3	Channel 3 Status	Data sending and receiving: flashes when the network or
DAIAS	Indicator	serial port sends and receives data;
		No link connection: the indicator light is off;
LINK4	Channel 4 status	The link connection is successful: the indicator light is
LINK4	indicator	always on;
		UDP mode: the indicator light is always on;
DATA4	Channel 4 status	Data sending and receiving: flashes when the network or
DAIA4	indicator	serial port sends and receives data;

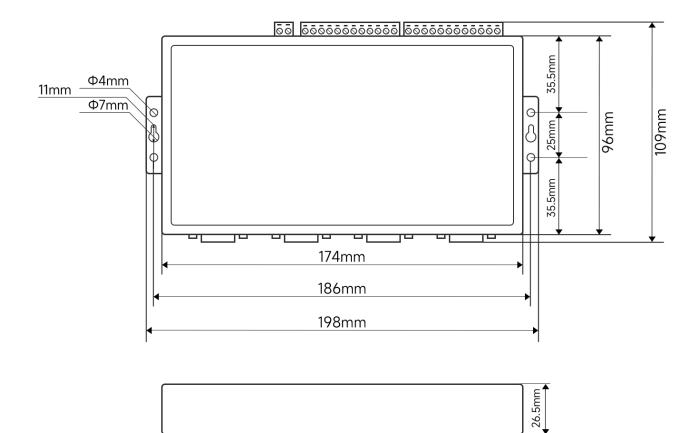
[Note] The status of some special working mode indicator lights:

1.Restore the factory, NET is always on for 5s, and the rest of the indicators remain in the state until NET goes out and then goes out;

2. Wait for the firmware burning, and the other indicators except the power indicator will flash at a period of 50 ms until the upgrade file starts to be transferred, or the firmware burning wait is exited;

3.During the firmware burning operation, all the indicators except the power indicator will flash at a cycle of 500 ms until the upgrade is completed;

3.4 Dimensions



4 Functions

4.1 Correspondence between channel and serial port

Baud rate: 2 400 , 4 800 , 9 600 , 1 4400 , 1 9200 , 3 8400 , 5 7600 , 7 6800 , 1 15200bps ; Data bits: only 8 bits are supported; Parity bit: support no parity (N ONE), odd parity (O DD), even parity (E VEN); Hardware flow control: not supported;

Channel	Serial Port	indicator light	serial protocol	Factory port, mode
channel 1	COM 1	P ORT1	RS485, RS232, RS422	8 001 , TCPS
channel 2	COM 2	P ORT2	RS485, RS232, RS422	8 002 , TCPS
channel 3	COM 3	P ORT3	RS485, RS232, RS422	8 003 , TCPS
channel 4	COM 4	P ORT4	RS485, RS232, RS422	8 004 , TCPS

4.2 Local network parameters

4.2.1 Local IP

STATIC (static IP) : users can define configuration IP, subnet mask, default gateway, domain name resolution server (D NS 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 parameters assigned by the server and configure them for use;

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 this 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 without configuring the device.

4.2.3 Network disconnection reconnection cycle

When the device detects that it is disconnected from the server, it periodically initiates a reconnection request, so the "disconnection reconnection time" will not affect the connection establishment time under normal circumstances. Users can customize the configuration request cycle, and the default is 5s.

4.2.4 Timeout restart (no data restart)

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 factory reset

Reload pin of the device for 5s until the N ET indicator light 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

TCP Server is the TCP server. In 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 4 channels can establish a complete communication link. In addition, the device also has 12 communication links for dynamic access. For example, if the device turns on the 4 -channel server mode, each The server can access 4 client devices, or if the device opens 1 server, the server can connect to 13 client devices. If the number of client devices exceeds the access number, the device will refuse to connect.

4.4.2 TCP Client

TCP Client is the 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 .

4 channels can independently open 4 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 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 5 12B it 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 the data transmission scenario where there is no requirement for the packet loss rate, the data packet is 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

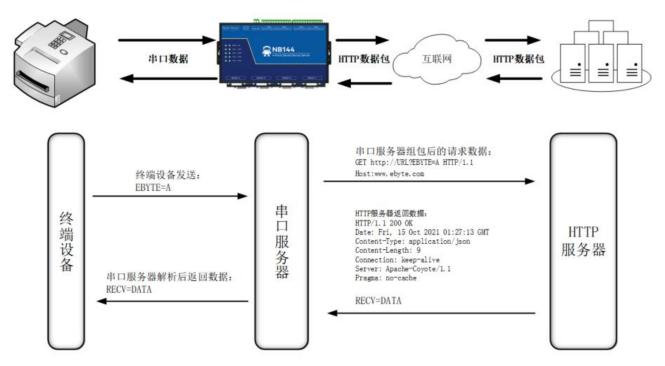
broadcast on the entire network segment, but the sending and receiving devices need to ensure that the ports are consistent, and the device can also receive broadcast data .

[Note] In UDP mode, the data sent by the network to the device should be less than 5 12B it per packet, otherwise it will cause data loss.

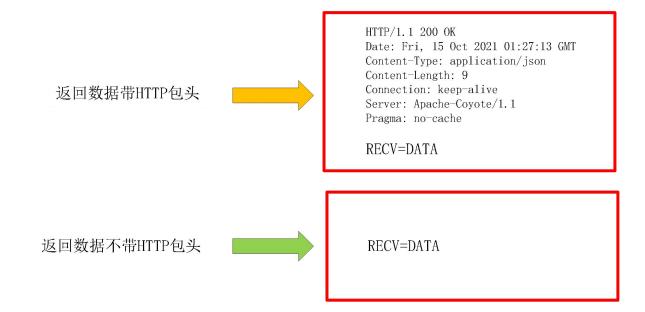
4.4.5 HTTP client

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 It supports up to 128 bytes of data, and the 4 channels can independently open the HTTP client mode without affecting each other.

The HTTP request data should be smaller than the packet length (5 to 12 bytes), otherwise the device will divide the request data into multiple packets for request, resulting in abnormal request.



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



Configuration instructions, turn on the host 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 the device IP abnormality caused by wrong configuration (network segment error, IP conflict, etc.), it needs to be used in the configuration The channel of the HTTP function supports 4 channels to configure the HTTP client mode at the same time. Here is an example of requesting the "Baidu" webpage through GET (URL : empty , H EADER : Host : www.baidu.com , target domain name : www .baidu.com , target port: 8 0 , it is recommended to use a random port for the local port), the specific configuration is shown in the figure below:

CI 亿佰特网络配置	置助手 v3.4					\times
菜单 语言 关于		10				
本地IP: 192.168	3. 0. 🗸	搜索设备	网络设置 PORT1 PORT2 PORT3 PORT4			
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			
く 日志:	S.	<u>></u> 清空日志	链路基本参数 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 ◆ HTTP URL路径			
 >>> 正在搜索设备 >>> 搜索设备完 >>> 搜索按接条员 >>> 搜索按接索 >>> 搜索被设备完 >>> 搜索被设备完置 >>> 按索被设备完置 >>> 按索被设备完置 >>> 按索收益 >>> 按索设备完置 >>> 按索设备完置 	成,共搜索到1 [~] 备 成,共搜索到1 [~] 设置 置成功 备	个设备	 □ 不返回包头数据 Http 包头 Host:www.baidu.com ● 复制参数 ✓ 粘贴参数 ✓ 导出配置 ● 重启设备 	♪ <i>○</i> 恢复	导入配置 默认参数	

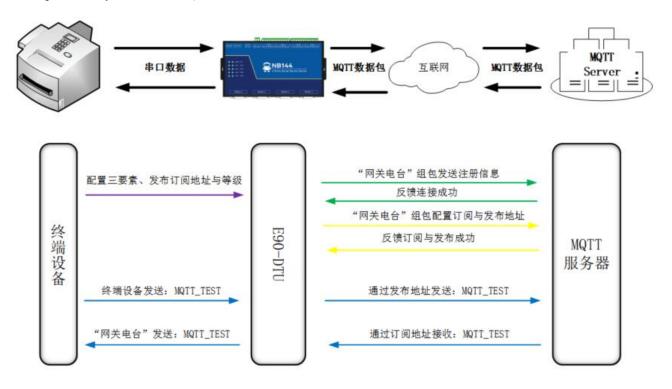
The request data is "/", use the serial port assistant to get the web page:

ATS XCOM V2.6		_		×
HTTP/1.1 200 OK Accept-Ranges: bytes	^	Port		
Cache-Control: no-cache		COM3: USB-S	SERIAL CH	34C 🗸
Connection: keep-alive				
Content-Length: 9508		Baud rate	115200	~
Content-Type: text/html				_
Date: Fri, 17 Jun 2022 03:48:01 GMT		Stop bits	1	\sim
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		Parity	None	
Server: BWS/1.1		Farity	None	\sim
Set-Cookie: BAIDUID=AFDEDA8B33352FE045C560B03CEC0850:FG=1; expires=Thu, 31-Dec-3; 23:55:55 GMT; max-age=2147483647; path=/; domain=, baidu.com	7	Operation	🥘 Cl.	ose
Set-Cookie: BIDUPSID=AFDEDA8B33352FE045C560B03CEC0850; expires=Thu, 31-Dec-37		-	1007	
23:55:55 GMT: max-age=2147483647; path=/; domain=. baidu.com			-7	-
25:55:55 GMT; max age=2147455641; path=9; domarh=: baldd.com Set=Cookie: PSTM=1655437681; expires=Thu, 31=Dec=37 23:55:55 GMT; max=age=2147483	2647.	Save Data	Clear	Data
path=/; domain=. baidu. com DATA	0941;	Hex	DTR	
Set-Cookie: BAIDUID=AFDEDA8B33352FE05CABE44166990399:FG=1; max-age=31536000;		RTS	口白素	力保存
expires=Sat, 17-Jun-23 03:48:91 GMT; domain=.baidu.com; path=/; version=1; commer	at=bd			117010
Traceid: 165543768104666744427776909494167371134	~	🗌 TimeSta	mp 100	ms
Single Send Farti Send Protocol Transmit Help				
		^	Sen	d
		~	Clear	Send
Timing Cycle 1000 MS Open	en File	Send File	Stop S	Send
Hex Send Wordwrap 0% CK	爆全网】正	点原子DS100	手持示波器	いました
🔅 🔹 www.openedv.com S:1 R:10495 CTS=0 DSR=0 D0	CD=0 Cu	rrent time11	:48:08	

POST description, the header data configured as POST request method does not need to configure the header data with a separate data length (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, at most Support 1 28 bytes data configuration.

4.4.6 MQTT client

Supports fast access to standard MQTT3.1.1 protocol servers (OneNET, Baidu Cloud, Huawei Cloud, user-built server types, etc.) and Alibaba Cloud servers, supports quality of service configuration (Qos 0, Qos 1), and supports ultra-long text Configuration, convenient and better access to network service operators (server address, three elements, subscription and publishing address support up to 128 characters configuration, Alibaba Cloud product key 6 4 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:

parameter	Standard MQTT3.3.1	Baidu cloud	One NET	
Equipment name (Client ID)	Client ID	DeviceKey	device ID	
username (Device name)	User Name	IoTCoreId/DeviceKe y	Product ID	
password	Password _	DeviceSecret	Device Name/ User	
(Device secret)			Password	
PrductKey _	Alibaba	a Cloud parameters, can	be left blank	
post topic	MQTT release t	opic address (dynamica NET)	lly generated by One	
subscribe topic	MQTT subscrip	tion topic address (dyna One NET)	amically generated by	

[Note]

• Dynamically generating topic addresses can use the same parameters to achieve the effect of data return,

for example: OneNET publishes and subscribes to the same topic address: 1 23456 to achieve data return;

• 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:

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 ~

(2) , Ali Cloud

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

☰ (-) 阿里云	â I	作台 华东2 (上海)	×							Q 搜索
← 公共实例		1 填写物联网平台满意	腹问卷,说出您的心声,有机会	收获100元代金券	學 (点击进入)					
设备管理	~	物联网平台 / 设备管	管理 / 设备 / 设备详情					-		
产品		← DEV04	高线							
设备			EBYTE 查看 a1GlhuTU1yN 复制							DeviceSecret ******** 查看
分组		设备信息 To	pic 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 CA 证书		设备信息								
规则引擎	~	产品名称	EBYTE				ProductKey		a1GlhuTU1y	/N 复制
监控运维	~	节点类型	设备				DeviceName		DEV04 复制	d.

Configure Topic for communication test:

☰ (-) 阿里云 🛛 🕫	↑ I作台 46年2 (上海) ∨ ①	Q 搜索	费用 工单 ICP fi
← 公共实例	● 填写物联网平台演覽意问卷, 说出您的心声 有初会收获100元代金券 (点击进入)		
设备管理	★ ERVTE ●		
产品	← EBYTE 0		
设备	ProductKey a1GihuTU1yN 類別 设备数 4 航往答理	ProductSecret 2	
分组	产品值息 Topic 美列表 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 物根 G Topic 自定义 Topic 3		
規則引擎	デン Topic 美		
监控运输	一 自定义 Topic	描述	操作
设备划归	/a1GihuTU1yN/\$(deviceName)/user/1234 发布和了两	1	编辑 删除

Configuration theme description:

Select the corresponding product, click "Customize To pic " under the Topic class list (please refer to the Alibaba Cloud documentation for details), click "Define To pic class", configure the name as 1 234 and grant publish and subscribe permissions (use for data return).

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

}

server address: ProductKey . iot-as-mqtt.cn-shanghai.aliyuncs.com:1883 pic for subscription and publishing : /a1GlhuTU1yN/DEV04/user/1234

平台选择	阿里云 ~ 心跳包周期 120秒 🗢	
设备名 Client ID	DEVO4	
用户名 Device name	DEV04	
密码 Device secret	***********************	
ProductKey	a1 GlhuTU1 yN	
订阅主题	/a1GlhuTU1yN/DEVO4/user/1234	Qos等级 0 v
发布主题	/alGlhuTU1yN/DEVO4/user/1234	Qos等级 0 ~

Cloud MQTT platform communication test:

XCOM V2.6	
[2021-10-22 09:11:09.498] TX: EBYTE_ALIYUNN_MQT7 [2021-10-22 09:11:09.669] RX: EBYTE_ALIYUNN_MQTT	RX
NA; EDITE_ALTIONA_MQTT	

4.5 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 (device is not correctly configured) port listening).

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 at AT, it will automatically configure a random port, which can be canceled by customization.

Static port:

Device fixed port (factory default: 8 001-800 4), TCP server mode device listens to the configuration port, accepts the connection request from the client and establishes a connection for data communication, and TCP client mode device fixed port initiates a connection request.

5 Advanced Features

5.1 Heartbeat package and registration package

5.1.1 heartbeat packet

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 be set in the "MQTT parameter configuration" column. Configure "Heartbeat Period" in the next step. 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 Alibaba 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. The data of the custom registration package (OLCSTM) is sent when the network establishes a connection with the device.
- 3. After the connection between the network and the device is established, the MAC address (EMBMAC) is added in front of each packet of data sent by the device to the network.
- After the connection between the network and the device is established, each packet of data sent by the device to the network will be prepended with custom registration packet data (EMBCSTM).

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

[Note] When configuring the registration package, it is recommended not to use special characters (such as "," "\", etc.), 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, 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 through configuration.

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. If you need multiple hosts, please use "storage gateway" and "multi-host mode".

Simple protocol conversion configuration:

本地IP: 192.168	i. 0. 🗸 🔍 ‡	搜索设备	网络设置	PORT1	PORT2	PORT3	PORT4			
IP	网关	MAC:	链路参数	串口参数	高级i	公置	modbus网关			
1 192.168.3.7	192.168.3.1	38-3B-2	Modbus 参数 MODBUS网关 MODBUS RTU RTU<->TCP切 预配置指令列	指令存储时 Di议转换				RTU应答超时时间 RTU轮询间隔时间 增加	1 200臺秒	·····
]志:	≪ ≯ ≩	青空日志	1 01,03,00	,00,00,0A						

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

	< 🛅 県 貞 几 05 06 15 16 17 22 23 TC โ	ol 🖺 💡 🕅	- D 📽 🖬 🚳 🛅 🗐	Setup Display View Window Help
= 1296: Err	Connection Setup		× Mbslave1	Connection Setup
connection	Modbus TCP/IP ~	ОК	No connection	Connection OK Serial Port
	Serial Settings	Cancel	Name 0	Cance Serial Settings
	USB-SERIAL CH340 (COM4)	Mode	1	USB-SERIAL CH340 (COM11)
	8 Data bits	Response Timeout	3	115200 Baud V 8 Data bits V Mode © RTU O ASCII
	None Parity 🗸	Delay Between Polls	5	Row Control None Parity
	1 Stop Bit 🛛 🗸 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
	192.168.4.164	~		192.168.3.3 🗸 8886
	Server Port Connect Timeout	● IPv4		Any Address 💿 IPv4
lelp, press F1	8886 3000 [ms]	O IPv6		Ignore Unit ID IPv6

Software register reading and emulation configuration:

Poll menu selection Set up \rightarrow Read/Write Definition

(ead/write	Definition				
Slave ID:	1]			ОК
Function:	03 Read H	olding Reg	isters (4x)	~	Cancel
Address:	0	PLC add	ress = 4000	1	
Quantity:	5]	Poll		
Scan Rate:	1000	[ms]	FUI		Apply
Disable					
Read/\	Vrite Disable	d			
Disable	on error			Rea	d/Write Once
View					
Rows					
10	020 C	50 ()	100 O Fit t	o Quar	ntity
Hide A	lias Columns		PLC Add	esses (Base 1)
Addres	s in Cell		Enron/Da	aniel Mo	de
Request					
RTU 0	1 03 <mark>00 0</mark> 0 0	0 05 85 0	.9		
ASCII 3	A 30 31 30 3	33 30 30 3	30 30 30 30	30 35 4	46 37 0D 0A

S slave menu select Set up Slave \rightarrow Definition

Slave Defin	ition		×
Slave ID:	1		ОК
Function:	03 Holding Register (4	4x) ~	Cancel
Address n	O Hex		
Address:	0 PLC adds	ress = 40001	
Quantity:	5		
View Rows 10	○20 ○50 ○1	.00 🔿 Fit to Quan	tity
Hide N		PLC Addresses (F	Base 1)
Error Simu		Insert CRC/LRC (Not when usi Return excepti	ng TCP/IP)

Newsletter Demo:

웹 Modbus Poll - Mbpoll1 File Edit Connection Setu				0 10						· □ ×
□ 📽 🖬 🎒 🗙 🗖 🖳		Communicatio		8 41						×
TX = 368: Err = 0: ID = 1: F	- = 03: SR = 11	Exit	Continue	Cle	ear	Save	Сору	Log	Stop on Error	Time stamp
Alias 0 1 2	00000 ^ 1 2 3	Rx:000113-01 Tx:000114-01 Rx:000115-01 Tx:000116-01 Rx:000117-01	7F 00 0 7F 00 0 80 00 0 80 00 0	0 00 06 0 00 0D 0 00 06 0 00 0D	5 01 03 0 0 01 03 0 5 01 03 0 0 01 03 0	0 00 00 A 00 01 0 00 00 A 00 01	05 00 02 00 05 00 02 00	03 00 04 00	05	^
3	4 5 ~	Tx:000118-01 Rx:000119-01 Tx:000120-01 Rx:000121-01 Tx:000122-01 Rx:000123-01 Tx:000124-01	81 00 0 82 00 0 82 00 0 83 00 0 83 00 0	0 00 0D 0 00 06 0 00 0D 0 00 06 0 00 0D	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	A 00 01 0 00 00 A 00 01 0 00 00 A 00 01	00 02 00 05 00 02 00 05 00 02 00	03 00 04 00	05	
Modbus Slave - Mbslave1		Rx:000125-01 Tx:000126-01 Rx:000127-01	85 00 0	0 00 06	5 01 03 0	0 00 00	05			
		No. of Concession, Name	- 10							
D = 1: F = 03		Exit	Continue	Clear	Save	Cop		Time stam	2	×
Name 0 1 2 3	00000 1 2 3 4	Tx:000091-0: Rx:000092-0: Tx:000093-0: Rx:000094-0: Tx:000095-0: Rx:000095-0: Tx:000095-0: Rx:000097-0: Rx:000098-0:	L 03 00 L 03 0A L 03 0A L 03 0A L 03 0A L 03 0A	00 00 01 00 01 01 00 00 01 00 01 01 00 01 01 00 00 01 00 00 01 00 00 01 00 00 01	5 85 C9 0 02 00 0 5 85 C9 0 02 00 0 5 85 C9 0 02 00 0	03 00 04 03 00 04	1 00 05 CF 1 00 05 CF	24 24		~
4	5	Tx:000099-00 Rx:000100-00 Tx:000101-00 Rx:000102-00 Tx:000103-00	L 03 00 L 03 0A L 03 00	00 00 00 00 01 00 00 00 00	5 85 C9 0 02 00 0 5 85 C9	03 00 04	1 00 05 CF	24		

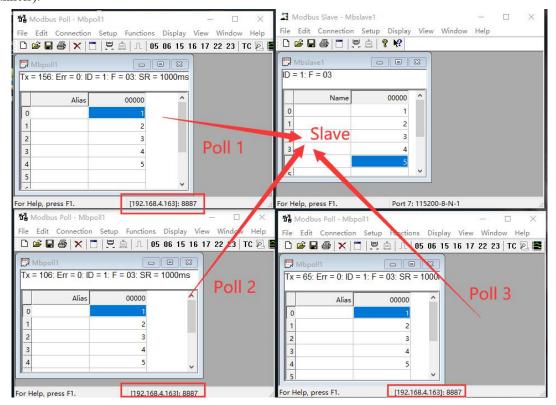
5.4.2 multi-host mode

Relatively simple protocol conversion can only have one Modbus master station, while the multi-host mode can simultaneously access multiple Modbus TCP hosts. When multiple Modbus hosts access at the same time, the Modbus gateway will perform bus occupancy scheduling (RS -485 The bus can only process one request at a time, and the multi-host mode will sort and process according to the TCP request, and other links will wait), thus solving the bus conflict problem (currently, it supports up to 9 Modbus channels in single server mode TCP host connection, multi-channel host access at the same time should pay attention to the matching of the request interval and 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 fast response, it is recommended to use a "storage gateway"), it 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.

 匠 亿佰特网络配置助手 v3.4 菜单 语言 关于 	- 🗆 X
本地IP: 192.168.0. > Q 搜索设备 IP 网关 MAC:	网络设置 PORT1 PORT2 PORT3 PORT4
IP MAX MAX 1 192.168.3.7 192.168.3.1 38-38-2	链路参数 串口参数 高级设置 nodbus 网关 Modbus 参数
	MODBUS RTU 参主机模式 ✓ MODBUS RTU ③000壹秒 ● MODBUS RTU 200秒 ◆ MODBUS RTU ④ ● <
< > > 日志: 《 清空日志 / · · · · · · · · · · · · · · · · · ·	7 預配置指 令列表 , , , , , 1 01,03,00,00,00,0A
<pre>>>> 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 >>> 恢复出厂设置成功 >>> 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</pre>	▶ 复制参数 【 私助参数 ▶ 复制参数 【 私助参数 ▶ 复制参数 【 私助参数

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).



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 is extremely It greatly improves the multi-host request processing capability of the gateway, and also shortens the time consumed by the entire request process. 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	- 🗆 X
本地IP: 192.168.0. > 📿 搜索设备	网络设置 PORTI PORT2 PORT3 PORT4
IP 网关 MAC:	链路参数 串口参数 高级设置 modbus 网关
1 192.168.3.7 192.168.3.1 38-38-2	Nodbus 参数 存储型网关 ✓ MODBUS RTU应答超时时间 3000毫秒 ● MODBUS RTU指令存储时间 200秒 ◆ MODBUS RTU论询间隔时间 200毫秒 ◆ RTU<->TCP协议转换 开启 ✓
<	,,,,,,
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 >>> 正在搜索设备 >>> 正在搜索设备 >>> 正在搜索设备	1 01,03,00,00,00,0A
>>> 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
	📄 保存配置 🌔 重启设备 📿 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) gateway has a 2K cache for storing instructions and returning results (reading 10 holding registers as an example, it can store about 67 instructions and returning results);
- (2) 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 -65535 ms (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 instruction and control instruction (05, 06, 0F, 10 function code) will directly access the RTU device;
- (6) Only support 01, 02, 03, 04M od bus function code query result storage;

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 Modbus 参数	高级设置 π	iodbus网关		
MODBUS网关	可配置网关	✓ MODBUS RT	U应答超时时间	3000毫秒 🔮
WODBUS RTU指令存储时间	200秒	MODBUS RT	U轮询间隔时间	200毫秒 👤
RTU<->TCP协议转换	开启	\sim		
而配置指令列表			1	
, , , , ,			增加	删除
1 01,03,00,00,00,0A				

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	一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一
1 01,03,00,00,00,0A	1 2

Instruction storage instructions (delete):

预配置指令列表		
01, 03, 00, 00, 00, 0A	增加	删除
1 01,03,00,00,00,0A	2	

5.4.5 automatic 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):

	网络调试助手		- 🗆 ×	Mod 🖬	bus Slave - [M	bslave1]		- 0	\times
网络设置	数据日志	NetAssist V5.0.2	94	File File	Edit Connec	tion Setup Displ	ay View Wind	low Help _	5 ×
(1)协议类型			~	🗅 🗃	8 8 5 3	≓ <u>a</u> ? k?			
TCP Server 💌		:34.628]# RECV HEX FR	ли 🚺	D = 1: F					
(2)本地主机地址	192.168.4.163 :61 01 03 02 00 01 79								
192.168.4.100 💌		:39.669]# RECV HEX FR	ли 🚺		Name	00000	Name	00010	
(3)本地主机端口	192.168.4.163 :61			0		1		0	
8886	01 03 02 00 01 79	84		1		0		0	
·				2		0		0	
				3		0		0	
接收设置				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				9		0		0	
自动滚屏 清除接收				9		0		U	
发送设置									
☞ 转义符指令解析 ①			~						
□ 自动发送附加位	数据发送 ↓ ◆ 街	研│ 「清除 1	清除						
□ 打开文件数据源	01234567\r\n								
□ 循环周期 300 ms	01201001 (1 (11	*	ii 🛛						
快捷指令历史发送				<					>
👉 就约 9/0	RX:63	TX:0 _ <u>复付</u>	21451		press F1.	Port 7:	115200-8-N-1		4

TCP client demo (Modbus TCP format):

网络设置	数据日志	NetAssist V5.0.2	🗇 🔿 📴 File	Edit Connectio	n Setup Displa	v View Windo	w Help	5
(1)协议类型 TCP Server		3:59.916]# RECV HEX FROM		86 5 2	the second s	,		lares l
(2)本地主机地址 192.168.4.100 🔽	192.168.4.163 :4 00 00 00 00 00 0	4508>		- = 03 Name	00000	Name	00010	
(3)本地主机端口	192.168.4.163 :4	4508>			1		0	_
8886	00 00 00 00 00 00 0	5 01 03 02 00 01 4:10.002]# RECV HEX FROM	1		0		0	
· ● 关闭	192.168.4.163 :4	4508>	2		0		0	
	00 00 00 00 00 0	5 01 03 02 00 01	3		0		0	
接收设置			4		0		0	
C ASCII @ HEX			5		0		0	
✓ 按日志模式显示 ✓ 按日志模式显示	<		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	strative)							
□ 打开文件数据源 □ 循环周期 300 ms 快捷指令 <u>历史发送</u>	数据发送 ▲ E	断开」 「清除 ~ 友ì						

5.5 Firmware upgrade

Users can upgrade the firmware of the device through the "Ebyte Network Configuration Tool" .

5.5.1 UDP upgrade

Step 1: Open the "Ebyte Network Configuration Tool", and select "Device Upgrade Assistant" under the "Menu" option;

设备升级助手 00 ∨ 串口升级助手 00 ∨ 设备ID IP	3 亿佰特网络配置助手 v3.0 菜单 语言 关于)	
设备ID IP 网关	100	~	
	设备ID	ΙΡ	网关

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.ebyte.com) . The demo firmware is not provided on the official website.

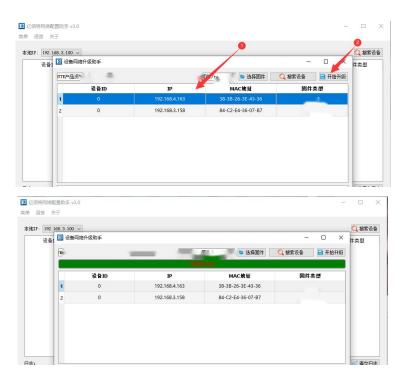
			🖕 法探固件 🔍 搜索设备			-	○ 撥素设备 固件类型	
	设备ID	P	MAC地址	固件类	ų		-9622	
	13 选择图件							
	← → ~ ↑ 📙 = 🛲	ARTAIN - MINNES			ڻ ×	○ 在國的	牛中搜索	
	组织▼ 新建文件夹						EE 💌	
	12 A MAR	* ^ 名称	^	修改日期	ġ	신고	大小	
	CONTRACTOR DE	i D 64	nware code t1.0.ebin	2022/5/7 13:33		BIN 文件	116	
	Internation		nware code t1.1.ebin	2022/5/7 15:18		BIN 文件	116	
			mare code t1.3.ebin	2022/5/9 11:19		BIN 文件	116	
	ACCURATE ACCURATE	🗋 fin	nware_co. 1.4.ebin	2022/5/12 11:1	0 E	BIN 文件	116	
-	- Derivier	🗋 tes	it.ebin	2022/5/13 16:4	17 E	BIN 文件	119	
	a shown							
	1997 B							
	10 BUT							
	1 X X							
	4.74			8				
	P 88							
	10.00	~						
	文件名(N): test.ebin				ebin.(*.ebin	1)	
	-							
_	1					打开(O)	R R	

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

设备ID	IP	阿关	MAC地址	模块型号	版本	固件类
國務	时网络升级助手				-	
5	-			🥒 陸择固件	🔍 停止接索	日升級
	设备ID	IP		MAC地址	固件类	-11
1	0	192.168.4.1	63 38	-3B-26-3E-43-36	MHX.	
2	0	192.168.3.1	58 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.

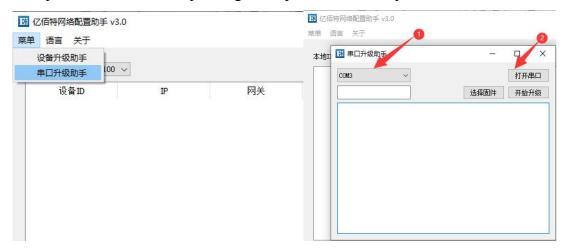


5.5.2 Serial upgrade

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

Step 1: Make sure the device is powered off and connect to serial port 1 correctly;

Step 2: Open "Ebyte Network Configuration Tool", 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.ebyte.com) . The demo firmware is not provided on the official website;

MG 透得個件 か 一 《	打开串口 西排 开始升级			固件类型
		Ý	0 /2 在国	回件 中搜索
组织▼ 新建文件夹		0		81 • 🔳 🕻
NB183串口服务器项目资料 ^	名称 ^	修改日期	英型	大小
2 案例	🗋 firmware code t1.0.ebin 💋	2022/5/7 13:33	EBIN 文件	116 KB
國件	firmware_code_t1.1.ebin	2022/5/7 15:18	EBIN 文件	116 KB
OneDrive	firmware_code_t1.3,em	2022/5/9 11:19	EBIN 文件	116 KB
	firmware_code4.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
1 3D 对象				
1 祝频				
■ 图片				
☐ 文档				
↓下戦				
▶ 音乐				3
二 桌面				
L Windows (C:)				

Step 4: Click "Start Upgrading", press and hold Re load on N B1 44, then turn on the power of the device, wait for the firmware upgrade to complete, and click "Cancel" to end the serial port upgrade;

13 串口升级助手			×	B 串口升级助手	3 31		×
сомз 🗸 🗸		关闭]串口	соиз		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	肖
				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:116 usart=>TX:118 usart=>TX:119	這件本点		*

6 Revision history

Version	revision date	revision date Revision Notes	
1.0	2022-11-14	initial version	LYL

Contact us

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