

E840-TTL (EC05-DNE) User Manual



Chengdu Ebyte Electronic Technology Co.,Ltd.

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1. 1 Overview

1.1 Product introduction

E840-TTL (EC05-DNE) is a small 4G TTL pin module developed by Chengdu Ebyte Electronic Technology Co., Ltd. using 4G CAT1 technology for the Asia-Pacific region, Australia, New Zealand and other regions. It has small size and high speed. , low latency, easy to use, simple configuration can realize the serial device networking function (two-way transparent transmission between the serial device and the network server). The product adopts 2.0mm pin header, which is easy to debug. Simple configuration can realize the serial port networking process, which is very convenient to integrate into the Internet of Things project.



The module supports two sockets, the MQTT protocol, and supports

access to the Alibaba Cloud, OneNet, Baidu Cloud and Huawei Cloud Platform, making it easy to implement IoT applications.

1.2 Features

- Adopts 4G CAT1 solution with millisecond-level latency to meet various data transmission application scenarios;
- Supports 4G full network;
- Supports transparent transmission of data;
- Supports TCP, UDP, MQTT, HTTP network protocols;
- Supports connection to Alibaba Cloud, Baidu Cloud, Huawei Cloud, Tencent Cloud, ONE Net and other standard MQTT3.1.1 servers;
- Supports heartbeat package and registration package;
- Supports simultaneous transmission and reception of two Socket links, and each Socket supports primary/standby connection information settings;
- Supports automatic conversion between Modbus RTU and Modbus TCP;
- Supports fast AT commands;
- Supports network, serial port, SMS AT command configuration;
- Supports the configuration of security mechanisms, and the password can be set by yourself;
- Computer-side parameter configuration software is convenient and flexible;
- Supports transparent transmission of network and SMS data, and supports phone number filtering;
- The module supports restart without data and reconnection after disconnection;
- Supports APN;
- Supports DC4.5~18 V wide voltage power supply or DC3.3~4.3V lithium battery power supply, adapting to a variety of application scenarios.

1.3 System parameters

| Parameter name | Parameter value | Remarks | | |
|---------------------------|-------------------------------------|--|--|--|
| | Supported frequency band | LTE-FDD: B1/B3/B5/B7/B8/B20/B28 | | |
| Characteristic parameters | Network protocol characteristics | Support TCP/UDP/ MQTT/HTTP/DNS protocols | | |
| - | RF interface | Generation 1 IPEX interface | | |
| | Data interface | 3.3V TTL level | | |
| | Baud rate | 1200-230400 , default 115200 bps | | |
| | Data bits | 8 | | |
| | Stop bit | 1 (default), 2 | | |
| | Parity | None (default), Odd, Even | | |
| Hardware features | Operating Voltage | VCC1: DC 4.5 ~ 18V VCC2:3.3 ~ 4.3V Note: VCC1 and VCC2 cannot be powered at the same time, it is recommended to use the VCC1 nin | | |
| | Working current | Peak - VCC1 pin: 2000mA@5V/1000mA@12V Peak - VCC2 pin : 2500mA@3.3V/2300mA@4.2V Standby - VCC1 pin: 50mA@5V/30mA@12V Standby - VCC 2 pin 80mA@3.3V/60mA@4.2V | | |
| | Operating temperature | -40 ~ +85°C | | |
| | Dimensions | 25.5× 25mm | | |
| | product weight | 4.3± 0.2g | | |
| | PWR (blue) | Lights up when power is on | | |
| Indicator light | STATE (orange) | Off: The module is powered on and searching for the SIM card; Flashing: The module detects the correct SIM card and is attaching to the network; Steady on: The module is successfully attached to the network; | | |
| | DATA (green) | Flashing : When the serial port is sending/receiving data | | |
| | LINK (orange) | Steady on: The module is successfully connected to the server; Off: The module failed to connect to the server successfully; | | |

1.4 Product Size



Unit : mm Tolerance value : ±0.1mm

1.5 Pin definition



| Serial number | Name | Function | Remarks |
|------------------|-------|---------------------------------------|---|
| 1 | DATA | Data indicator | Off: No data is sent or received through the serial port. Flashing : When the serial port is sending/receiving data |
| 2 | LINK | Link indicator | Steady on: Any link is successfully connected to the server; Off: The module failed to connect to the server successfully; |
| 3 | STATE | Network access status indicator light | Off: The module is powered on and searching for the SIM card; Flashing: The module detects the correct SIM card and is attaching to the network; Steady on: The module is successfully attached to the network; |
| 4 | POWER | Power Indicator | Lights up when power is on |
| 5 | GND | Ground pin | Can be used as power ground |
| 6 | VCC1 | 4.5 ~ 18V input | If the voltage supply is 4.5V and above (pay attention to the module operating voltage range), the VCC1 pin must be used, and the VCC1 power supply load capacity is recommended to be 2A @5V or above. It is forbidden to supply power with VCC2 at the same time! !! |
| 7 | NC | Empty pin | Use it as normal IO when customizing, just leave it floating |

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| | | when not in use. | |
|----|----------|--------------------------------------|--|
| 8 | GND | Ground pin | Can be used as power ground |
| 9 | SIM_VDD | External SIM card pin | External SIM card VDD, used to connect external cards |
| 10 | SIM_CLK | External SIM card pin | External SIM card CLK, used to connect external cards |
| 11 | SIM_RST | External SIM card pin | External SIM card RST, used to connect external cards |
| 12 | SIM_DATA | External SIM card pin | External SIM card DATA, used to connect external cards |
| 13 | GND | Ground pin | Can be used as power ground |
| 14 | RESRT | Reset pin | Pull it low to restart the module. It is recommended to pull it up externally when not in use. |
| 15 | SIM | SIM card holder | NaNo SIM card holder, when inserting the card, the chip faces upward and the notch faces inward. |
| 16 | ANT | Antenna interface | 1st generation IPEX |
| 17 | VCC2 | 3.3 ~ 4.3V input | 4.2V battery system power supply (pay attention to the module operating voltage range), VCC2 power supply load capacity is recommended to be 2.5A @4V or above. It is prohibited to supply power to VCC1 at the same time, and reverse connection is prohibited! !! |
| 18 | GND | Ground pin | Power ground |
| 19 | LINK | LINK indicator light external pin | Use external LED, common cathode connection method |
| 20 | DATA | LINK indicator light external pin | Use external LED, common cathode connection method |
| 21 | STATE | LINK indicator light external pin | Use external LED, common cathode connection method |
| 22 | RELOAD | Restore factory settings pins | Press and hold for 3-5 seconds to restore factory settings . All indicators light up to indicate success. Press and hold the button to power on and enter the upgrade mode, all indicators will flash. |
| 23 | RS485_EN | RS485 chip enable pin | RS485 enable control pin, set high when the serial port sends data, and normally low; |
| 24 | TXD | Serial port sending pin | Connect to MCU or TTL debugger RXD |
| 25 | RXD | Serial port receiving pin | Connect with MCU or TTL debugger TXD |

2 Quick start 2.1 Hardware preparation

The hardware required for this test is as follows:



1. Insert the SIM card into the module. Note that it is a Nano SIM card (small card), with the notch facing inward and the chip facing upward;



- 2. Connect the IPEX end of the IPEX adapter cable to the device, connect the SMA end to the 4G antenna, and keep the antenna vertically upward;
- 3. Use a connecting cable to connect the UDB to TTL TXD interface to the module RXD interface, connect the UDB to TTL RXD interface to the module TXD interface, and connect the UDB to TTL GND interface to the module GND interface ;



- 4. Connect the USB to the computer (CH340 driver needs to be installed);
- 5. Use a connecting wire to connect the positive pole of the 12V switching power supply to the module VCC1, and connect the negative pole of the 12V switching power supply to the module GND;
- 6. Connect power;
- 7. Wait for the module STATE light to change from off to flashing, and finally to solid light.

2.2 Parameter configuration

Note: Since the module is linked to the Ebyte test server by default, you can ignore this step if you only want to verify communication.

To modify the module parameter configuration to connect to the user server, you need to know the server IP (or domain name) and port in advance. Here we take connecting to the TCP server as an example. The parameter configuration software can be downloaded from Yibyte official website. After the download is completed, double-click to run the software.

1. Select the COM port corresponding to the adapter (if not found, please go to the serial port adapter website to download and install the driver), select the corresponding baud rate, data bits, stop bits, and check bits (the default is 115200,8,N1);

2. Click "Open Serial Port" and it will display as "Close Serial Port" after opening.

3. Enter the corresponding "configuration password". If the password has not been changed, please ignore it. If you forget the password, please press and hold the Reload button of the test baseboard (pull down the module Reload pin) for 5 seconds to restore the factory;

- 4、 Click "Enter Configuration"
- 5、 Click "Read Parameters"

| MainWindow | | | | | | | | | | 33 <u>—</u> 6 | |
|---------------------|--|-------------|-------------------|---------|-----------------|-------------|--|------------------------------|------------------|---------------|---------------------------|
| | 乙佰特・物联网區 | 立用专家 | र Iot Api | PLICAT | ION EXPE | ERT | | Target Mode | L bl: EC Clid | s to switch | <mark>ዊ</mark> English |
| Port COM3 Pram 8 | Baldrate 115200 ~ NONE 1 | Close | NETAT Password | AT mode | 5 Read prams | ⊥ Jave…n | fig Exit…mode | E Load ini | 💾 Save ini | Recover | Reboot |
| Essential informa | ation Link 1 Link 2 | Advanced se | ettings | | | | [2024-03-14 20 COM3->RX: +OK= | .?2:21'A4T]# 0 | UARI-RA: | | ^ |
| — Device basic i | information | | | | | î | [2024-03-14 20 | :35:51.943]# | UART-TX: | | |
| SN Version | 20230625 FW-9165-0-12 | | | | | | COM3->TX:AT+SM [2024-03-14 20 COM3->RX: +OK= | SFILTER :35:52.004]# 0 | UART-RX: | | |
| IMEI | 862990060262549 | | | | | | [2024-03-14 20 | :35:52.006]# | UART-TX: | | |
| ICCID | 898604B3192140297491 | | | | 1 | | COM3->TX:AT+PA | SSWORDEN | | | |
| SIM card status | Normal | | | | Y | | [2024-03-14 20 COM3->RX: +OK= | :35:52.066]# 0 | UART-RX: | | |
| CSQ | 15 | | | | | | [2024-03-14 20 | ·35·52 067]# | HART-TY. | | |
| Net Status | Network registration succ | essful | | | V- | | COM3->TX:AT+PA | SSWORDSET | | | |
| — Serial port pa | arams settings | | | | | | [2024-03-14 20 COM3->RX: +OK= | :35:52.128]# NETAT | UART-RX: | | |
| Baudrate | 115200 | × 1 | ~ | | | | [2024-03-14 20 COM3->TX:AT+FA | :35:52.131]# STAT | UART-TX: | | |
| Pack time | 10ms Pack len | gth 1024 | * | | | | [2024-03-14 20 COM3->RX: +OK= | :35:52.192]# 0,0,0 | UART-RX: | | |
| - Serial Port He | eartbeat settings | | | | | | [2024-03-14 20 | :35:52.193]# | INFO: | .11 | |
| Heartbeat pack | et period Osec | | | | | | ine device par | ameter was r | eau successit | | ~ |
| Heartbeat pack | set content Heart | | | | HEX | | | | | | |
| -Other settings | 3 | | | | | • | Clear recv Ser | nd: Recv: [| With /r/n | Clear send | Send |

6. Select "Link 1" and configure the link "Connection Type". Here we take TCPC (TCP Client) as an example;

7. Set the server "target port";

8. Set the "server address" (target IP or domain name, the domain name can be up to 128 bytes), here we take a special test server as an example, target IP: cloud.ebyte.com; target port: 8888; function: send arbitrary data to the server, will receive any data back.

| MainWindow | — L X |
|---|--|
| (((•)) [®] EBYTE 亿佰特・物联网应用专家 IoT APPLICATION EXPI | ERT Target Model: EC Click to switch English |
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| Registration package settings Registration package Disable package content IMEI Method Upload only when connected > Custom data content enroll | COM3->RX: +OK=0,0,0 [2024-03-14 20:35:52.193]# INFO: The device parameter was read successfully |
| | Clear recv Send: Recv: With /r/n Clear send Send |

9. After the configuration is completed, click "Save Configuration";

| 13 MainWindow | - |
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| ((い)) [®] 亿佰特・物联网应用专家 IoT APPLICATION EXPE | ERT Target Model: EC." Click to switch Englis |
| Port COM3 Baudrate 115200 Image: Close NETAT Password AT mode Read prame Pram 8 NONE 1 Close Password AT mode Read prame Essential information Link 1 Link 2 Advanced settings Link Switch Enable Image: Close Image: Close | Image: Save winfig Exit wmode Image: Save winfig Image: Save win |
| → Basic Settings Protocol TCPC ~ Remote port 8888 ÷ Short link time Osec ÷ Remote IP/domain cloud.ebyte.com Backup server Disable ~ ackup server por 0 ÷ Backup Server addre: 0 Heaetheat macketage settings | <pre>COUST 271-11 SMSF121ER [2024-03-14 20:35:52.004]# UART-RX: COUM3->RX: +OK=0 [2024-03-14 20:35:52.006]# UART-TX: COUM3->TX:AT+PASSWORDEN [2024-03-14 20:35:52.066]# UART-RX: COUM3->RX: +OK=0 [2024-03-14 20:35:52.067]# UART-TX: COUM3->TX:AT#FASSWORDEN [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.067]# [2024-03-14 20:35:52.07]# [2024-03-14 20:35:52.07]# [2024-03-14 20:35:52.07]# [2024-03-14 20:35]# [2024-03-14]# [2024-03-14]# [2024-03-14]#</pre> |
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| Registration package settings Registration package Disable v package content IMEI v Method Upload only when connected \checkmark Custom data content enroll HEX | [2024-03-14 20:35:52.193]# INFO: The device parameter was read successfully |
| | Clear recv Send: Recv: With /r/n Clear send Send |

- 10, Click "Restart Device" and the parameters will take effect after restarting.
- 11、 Click "Close Serial Port"

| MainWindow | — — X |
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| ((い)) EBYTE 亿佰特・物联网应用专家 IOT APPLICATION EXPER | T Target Model: EC- Click to switch English |
| Port COM3 Baudrate 115200 Pram 8 NONE 1 Close Password AT mode Read prame Saw | ⊥ ⊖ (|
| Essential information Link 1 Link 2 Advanced settings Link Switch Enable Protocol TCPC Remote port 8888 \$ Short link time Osec \$ Remote IP/domain cloud.ebyte.com Backup server Disable ackup server por 0 \$ Recture Server addre 0 | 12024-03-14 20:33:51.941]# UART-K1: COM3->RX: +0K=0 [2024+03-14 20:35:51.943]# UART-TX: COM3->TX:AT+SMSFLLTER [2024+03-14 20:35:52.004]# UART-RX: COM3->RX: +0K=0 [2024+03-14 20:35:52.006]# UART-TX: COM3->TX:AT+PASSWORDEN [2024+03-14 20:35:52.006]# UART-RX: COM3->TX:AT+PASSWORDEN [2024+03-14 20:35:52.006]# UART-RX: COM3->TX:AT+PASSWORDEN [2024+03-14 20:35:52.006]# UART-RX: COM3->TX:AT+PASSWORDEN [2024+03-14 20:35:52.006]# UART-RX: |
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| Heartbeat package Disable ~ Heartbeat package content INEI ~ Heartbeat package period 60sec Custom data heart HEX | [2024-03-14 20:35:52.128]# UART-RX: COM3->RX: +OK=NETAT [2024-03-14 20:35:52.131]# UART-TX: COM3->TX:AT+FASTAT [2024-03-14 20:35:52.192]# UART-RX: |
| Registration package settings Registration package Disable package content IMFI V | COM3->XX: +OK=0,0,0 [2024-03-14 20:35:52.193]# INFO: The device parameter was read successfully |
| Method Upload only when connected Custom data content enroll | ✓ Clear recv Send: Recv: □ With /r/n Clear send Send |

2.3 Communication test

Note: This site is connected to the test server provided by Ebyte, which provides a backhaul service. Therefore, during the test, after the LINK light turns on, any data can be sent to the module, and the module will forward it to the server, and then the server will Use the original link to return the data to the module serial port to realize bidirectional transmission of data between the module and the server.

1. Double-click to run XCOM V2.6



- 2. Select the serial port number of the current module connection, and select the correct baud rate, stop bit, data bit, and check bit (default 115200/1/8, N)
- 3. Open serial port

| ATK XCOM V2.6 | | | | | × |
|---|------------|------------|--------------------------|--------------|--------|
| | | | Port | | |
| | | | COM3: USB- | SERIAL CH | £34C ~ |
| | | | Baud rate | 115200 | ~ |
| | | | Stop bits | 1 | ~ |
| | | | Data bits | 8 | ~ |
| | | | Parity | None | ~ |
| | | | 0per at <mark>3</mark> n |) c1 | .ose |
| | | | Save Data | a Clear | Data |
| | | | Hex | DTI | R |
| | | | RTS | | 动保存 |
| | | | TimeSta | mp 10 | ms |
| Single Send Multi Send Protocol Transmit Help | | | | | |
| EBYTE TEST | | | ~ | Ser | nd |
| | | | , | Clear | Send |
| Timing Cycle 100 ms | | Open File | Send File | Stop | Send |
| Hex Send Wordwrap | 0% | 【火爆全网】〕 | E点原子DS100 | 手持示波 | 器上市 |
| 🔅 🔹 www.openedv.com S:0 R:0 | CTS=0 DSR: | =0 DCD=0 C | urrent time2(|):39:01 | |

4. Send any data and you can see the data returned in about a second.

| XCOM V2.6 | | | | × |
|---|----------|---------------|-----------|-------------|
| EBYTE TEST | | Port | | |
| EBYTE TEST | | COM3: USB-S | SERIAL CI | H34C \sim |
| | | Baud rate | 115200 | ~ |
| | | Stop bits | 1 | ~ |
| | | Data bits | 8 | ~ |
| | | Parity | None | ~ |
| | | Operation | 🥘 CI | Lose |
| | | Save Data | Clear | Data |
| | | 🗌 Hex | 🗌 DT | R |
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| EBITE TEST | | · · · · · · | Se | nd |
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| Hex Send Wordwrap 0% CM | 火爆全网】了 | E点原子DS100 | 手持示波 | 器上市 |
| ↔ www.openedv.com S:36 R:36 CTS=0 DSR=0 D | DCD=0 C | urrent time20 | :40:12 | |
| 5. Finished test | - | | | |

3 Product Features

3.0 Data transparent transmission mode

In this mode, the user's serial port device can send data to the designated server on the network through this module . The module can also accept data from the server and forward the information to the serial device.

Supports 2- way Socket independent configuration.

This product supports TCP client (TCPC), UDP client (UDPC), TCP server (TCPS), and UDP server (UDPS) transparent transmission communication .

(TCPS and UDPS require the support of the APN card, and ordinary IoT cards cannot use server mode)

Users do not need to pay attention to the data conversion process between serial port data and network data packets. Through simple parameter settings, transparent data communication between the serial port device and the network server can be achieved.

Quick steps:

- 1. Select the corresponding link
- 2. Configure connection type
- 3. Enter the target address/domain name and target port to set up a backup server
- 4. If you need to set a short connection, set the short connection time (0 means long connection)
- 5. Click to save configuration
- 6. Click to restart the device
- E MainWindow

| ((い)) [®] EBYTE 亿佰特・物联网应用专家 IoT APPLICATION EXPERT | Target Model: EC… Click to switch English |
|--|--|
| Pram 8 NONE 1 Close Password AT mode Read prams Saver | 25 D C C C C C C C C C C C C C C C C C C |
| Essential information Link 1 Link 2 Advanced settings | 12024-03-14 20:42:08.400J# UAKI-KX: COM3->RX: +OK=0 |
| Link Switch Enable 🗸 | [2024-03-14 20:42:08.461]# UART-TX: |
| -Basic Settings | COM3->TX:AT+SMSFILTER |
| Protocol TCPC 2 V Penote port 8888 A Short Ank time Gree A | [2024-03-14 20:42:08.521]# UART-RX: COM3->RX: +OK=0 |
| Remote IP/domain cloud.ebyte.com | [2024-03-14 20:42:08.523]# UART-TX: |
| Backup server Disable 🗸 ackup server por 0 🗘 | |
| Backup Server addre: 0 | [2024-03-14 20:42:08.584]# UART-RX: COM3->RX: +0K=0 |
| - Heaetbeat packetage settings | [2024-03-14 20:42:08.585]# UART-TX: COM3->TX:AT+PASSWORDSET |
| E Heartbeat package Disable ~ | [2024-03-14 20:42:08.646]# UART-RX: |
| , Heartbeat package content IMEI \checkmark | |
| Heartbeat package period 60sec | [2024-03-14 20:42:08.647]# UART-TX: COM3->TX:AT+FASTAT |
| Custom data heart HEX | [2024-03-14 20:42:08.708]# UART-RX: |
| - Peristration package estimat | COM3->RX: +OK=0, 0, 0 |
| Kegistation package sectings | [2024-03-14 20:42:08.710]# INFO: |
| Registration package Disable 🗸 | ine device parameter was read successfully |
| package content IMEI 🗸 | |
| Method Upload only when connected ~ | |
| Custom data content enroll | |
| | Clear recv Send: Recv: 🛄 With /r/n Clear send Send |

the module is connected to the network, it can automatically connect to the set server.

3.1.1 Heartbeat packet

Heartbeat packets support network heartbeat packets and serial port heartbeat packets. Network heartbeat packets are sent to the server, and serial port heartbeat packets are sent to the serial port.

Network heartbeat packet

In network transparent transmission mode, users can choose the module to send network heartbeat packets. The main purpose of sending to the network is to maintain activity with the server and allow idle modules (which will not send data to the server for a long time) to maintain connections with the server.

When data is uploaded to the serial port, the content of the heartbeat packet will no longer be sent, and the timing will start from the idle time. When the heartbeat time is up, the heartbeat data will be sent to the server.

The data of the heartbeat packet can be ICCID code, IMEI code, SN or custom registration data (HEX and ASCII are supported to configure custom heartbeat packets, ASCII can be configured with a maximum of 64 bytes, and HEX can be configured with a maximum of 32 bytes).

The heartbeat packet function only takes effect in TCPC, MQTTC, and HTTPC modes, and does not take effect in short connection mode.

PC software configuration steps:

1. Select the heartbeat packet switch to turn on.

2. Select heartbeat packet content.

3. Customizing the heartbeat package requires writing the content of the heartbeat package (if there

is none, omit it. After selecting IMEI and ICCID, the custom data will not take effect).

- 4. Set the heartbeat packet time (unit: seconds)
- 5. If you use hexadecimal to send, you need to check the Hex box before outputting the content .

| Heartbeat package | Disable | ~ | |
|---------------------------|------------------|--------|-----|
| Heartbeat package content | IMEI | \sim | |
| Heartbeat package period | 60sec | • | |
| Custom data | 0001020304050607 | 100 | HEX |

Serial heartbeat packet

Users can set the serial port heartbeat packet to poll the serial port data, and can customize the heartbeat data.

- PC software configuration steps:
- 1. Set the heartbeat packet time (unit: seconds , time 5-300 seconds)
- 2、Set heartbeat packet data

3. If you use hexadecimal to send, check the Hex check box (ASCII can be configured up to 64 bytes, HEX can be configured up to 32 bytes).

| Heartbeat packet period | 5sec 🖨 | |
|-------------------------|---------|-----|
| Heartheat nacket conten | t Heart | нех |

3.1.2 Registration package

In network transparent transmission mode (TCPC/UDPC), users can choose to have the module send a registration package to the server. The registration package is to allow the server to identify the source of the data, or as a password to obtain server function authorization. The registration packet can be sent when the module establishes a connection with the server, or the registration packet data can be spliced at the front end of each data packet as the header of a data packet. The data of the registration package can be ICCID, IMEI or customized registration data (customized registration package can be configured in HEX and ASCII, ASCII can be configured with a maximum of 64 bytes , and HEX can be configured with a maximum of 32 bytes).

PC software configuration steps:

- 1. Select the registration package switch to turn it on.
- 2. Select the registration package content (ICCID, IMEI or custom registration data).
- 3. Set the registration packet sending method (sent as a data header or connection).
- 4. If sending in hexadecimal, check the Hex check box .

5. Customize the registration package and write the registration package content (if you choose HEX, you need to fill it in again).

| Registration package | Disable ~ | |
|----------------------|---|-----|
| package content | IMEI ~ | |
| Method | Upload only when connected ${\scriptstyle\lor}$ | |
| Custom data content | enroll | HEX |

3.1.3 Multi-link protocol distribution

Supports socket distribution protocol. Data can be sent to different Sockets through specific protocols, and data received by different Sockets can also be distinguished by adding headers and tails.

PC software configuration steps:

| -Other settings | | |
|-----------------------------------|-----------------------------------|--------------|
| No data reboot time 30min 🖨 | Multi link protocol distribution | Disable \vee |
| Modbus RTU/TCP convers: Disable 🗸 | Modbus RTU/TCP conversion address | 0 |

After turning on the multi-link protocol distribution mode, there are the following possibilities. Here we take Socke t1 connected to the server port 8887 and Socke t2 connected to the server port 8888 as an example:

| Essential information Link 1 Link 2 Advanced settings | Essential information Link 1 Link 2 Advanced settings |
|---|--|
| Link Switch Enable ~ | Link Switch Enable ~ |
| ■Basic Settings TCPC Remote port 8887 Sho t link time 0sec Protocol 112.54.89.224 Backup server Disable ∨ ackup server por 0 Backup Server addre: 0 | Protocol Remote IP/domain II2.54.89.224 Backup server Disable v ackup server por 0 0 Backup Server addre: 0 |

1. The serial port sends data if the data header is 55 FE AA 00, which means it meets the requirements, that is, 55 FE AA 00 + data, then the data will only be transmitted to Socket 1, and the received content only contains data, without the data header;

| 1. · | TCP/UDP Net Assistant | | | TCP/U | IDP Net Assistant | | ₩ <u> ×</u> |
|---|--|---|--|---|--|-------------|----------------------|
| Settings [1] Protocol TCP Server | Data log Socket 1 [2024-03-14 20:59:59.520]# RECV HEX FROM 01 02 03 | <u>NetAssist V5.0.1</u> | Settings (1) Protocol TCP Server | Data log S | ocket2 | NetAssist V | <u>.0.1</u> ♥ ₽ ^ |
| 192.168.0.100 (3) Local Host Port 8887 | [2024-03-14 21:00:00.120]# RECV HEX FROM 01 02 03 [2024-03-14 21:00:00.423]# RECV HEX FROM 01 02 03 | :55477> :55477> /2.6 | 192.168.0.100 | _ | ПХ | | 1000 |
| Recy Options | | | | Port COM3:USB-SI | ERIAL CH34C ~ | | |
| Log Display Mode Auto Linefeed Hide Received Data Gass Described Tata | | | | Baud rate Stop bits Data bits | 115200 ~ 1 ~ 8 ~ | | |
| AutoScroll Clear | | | | Parity Operation | None 🗸 | | |
| Use Escape Chars | Data Send Clients: All Conr | | | Save Data Hex RTS | Clear Data DTR 自动保存 1) | ▼ ← Discon | ear 雀 Clear |
| Send from File Cycle 80 ms <u>Shortcut History</u> | http://www.omsoft.on Single Send | Multi Send Protocol Transmit Help | | TimeStam | p 10 ms | | Send |
| Le Heady | 3/0 | | | ~ | Clear Send | .0 1X:0 | <u>Heset</u> |
| | ☐ Timing ☑ Hex Send | Cycle 100 ms d Vorder ap w.openedv.com S:42 R:0 | 0% [CTS=0 DSR=0 | Dpen File Send File 火爆全网】正点原子DS100号 DCD=0 Current time21: | Stop Send F持示波器上市 00:00 _{.::} | | |

2. The serial port sends data if the data header is 55 FE AA 01, which means it meets the requirements, that is, 55 FE AA 01+data, then the data will only be transmitted to Socket 2, and the received content only contains data, without the data header;

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3. The data sent by the serial port is arbitrary data, and the data will be transmitted to two Sockets.



4. Socket 1 sends any data. After the serial port receives it, it will add the data header AA FE 55 00 before the data.

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| | TCP/UDP Net As | sistant | 4 × | | | TCP/UDP No | et Assistant | | ₩ - □ × |
|--------------------------|---------------------------------------|---------------------------------|------------------|--|--------------|------------------|------------------|------------|------------------|
| Settings (1) Protocol | Data log Socket | 1 NetAssist V | <u>5.0.1</u> ♀ ♀ | Settings (1) Protocol | Data log | Soc | ket 2 | NetAssist | <u>v5.0.1</u> |
| TCP Server | [2024-03-14 21:04:31.482]# SEND HE | X TO ALL | ^ | TCP Server 💌 | | | | | ^ |
| (2) Local Host Addr | 03 02 01 | | | (2) Local Host Addr 192.168.0.100 V | | | | | |
| (3) Local Host Port | | | | (3) Local Host Port | | | | | |
| · Close | l r | ATTA NOOM VE.G | | | | - | □ × | | |
| | | AA FE 55 00 03 02 01 | | | | Port | | | |
| Recy Options | | | | | | COM3: USB-SER | IAL CH34C \sim | | |
| Log Display Mode | | | | | | Baud rate 11 | 15200 ~ | | |
| Auto Linefeed | | | | | | Stop hits 1 | ~ | | |
| Hide Received Data | | | | | | | - | | |
| Save Recv to File | | | | | | Data bits 8 | ~ | | |
| AutoScroll Llear | | | | | | Parity No. | one 🗸 | | |
| Send Options | | | | | | Operation 🧃 | Close | | |
| C ASCI (* HEX | | | | | | | | | |
| T AT CMD auto CRLF | | | | | | Save Data | Clear Data | | ~ |
| Auto Append Bytes | Data Send Cliente: All Connection | | | | | Mex . | DTR | ▼ ◆ Discon | Clear 🕈 Clear |
| Send from File | | | | | | I RTS | □ 自动保存 | | |
| Cycle 80 ms | | | | | | limeStamp | 10 ms | | Send |
| Shortout Aistory | <u> </u> | Single Send Multi Send Protocol | . Transmit Help | | | | | | |
| If Sending finished! | 0/1 | 01 02 03 04 05 06 | | | | ^ | Send | 12:0 | <u>Reset</u> //, |
| | | | | | | | | | |
| | | | | | | ~ | Clear Send | | |
| | | Timing Cycle 100 ms | | | Open File | Send File | Stop Send | | |
| | | ☑ Hex Send 🔲 Wordwrap | | 0% | 6 【火爆全网】] | E点原子DS100手 | 寺示波器上市 | | |
| | | 🔅 🔹 www.openedv.com S:0 | R:7 | CTS=0 DS | R=0 DCD=0 Cu | urrent time21:04 | k45: | | |

5. Socket 2 sends arbitrary data. After the serial port receives it, it will add the data header AA FE 55 01 before the data.

| 🏪 • 🦯 🕘 | TCP/UDP Net As | sistant 🛛 🗸 – 🗆 🗙 | | | TCP/UDP Net Assistant | ₩ - □ × |
|--|--|---|---|-------------------------------------|---|---|
| Settings (1) Protocol | Data log Socket 1 | NetAssist V5.0.1 @ | Settings (1) Protocol | Data log | Socket 2 | <u>NetAssist V5.0.1</u> |
| CP Server (2) Local Host Addr (192.168.0.100 (3) Local Host Port | | | 12P Server | [2024-03-14 2 01 02 03 | 1:06:11.324]# SEND HEX TO ALL> | |
| 8887 | г | ATE YCOLL V3 6 | Close | | | |
| C ASCII C HEX | _ | | C ASCII C HEX | | | |
| Auto Linefeed | < Comparison of the second sec | | Auto Linefeed Hide Beceived Data | < | | |
| Save Recy to File | | | Save Recv to File | | | |
| Send Options C ASCII © HEX Use Escape Chars | | | Send Options C ASCII C HEX Use Escape Chars | | | |
| AT CMD auto CRLF Auto Append Bytes Send from File Cycle 80 ms | Data Send Clients: All Connection | | AT CMD auto CRLF Auto Append Bytes Send from File Cycle 80 ms | Data Send CI | ients: All Connections (1) | ▼ <u>* Discon</u> Clear Clear Send |
| Beadul | 0/0 | Single Send Multi Send Protocol Transmit Hel 01 02 03 04 05 06 | Input sending content he | re, press Enter or D | tri+E 1/1 BX: | 15 TX:3 Reset |
| | | ☐ Timing Cycle 100 ms ✓ Hex Send ☐ Wordwrap ★ • www.openedw.com S:0 # | 8:7 CTS=0 DS | Open File (火爆全网) SR=0 DCD=0 C | Clear Send Send File Stop Send 正占原子DS100手持示波器上市 uurrent time21:06:11 | |

3.1.4 Short connection

When set to a short link, a connection will be established with the server only when data is sent. When there is no data transmission, the timer will start. After the set time is exceeded, the connection with the server will be disconnected. The short connection time can be configured up to 6 5535 s. This setting only takes effect in TCPC mode .

PC software configuration steps:

| sential information | Link 1 | Link 2 | Advanced | settings | | | | |
|---------------------|-----------|---------|------------|----------|-------|-----------|------|---|
| nk Switch Enable 🖂 | | | | | | | | |
| -Basic Settings | | | | | | | | |
| Protocol | TCPC | ~ Ren | note port | 8888 | Short | link time | 2sec | - |
| Remote IP/domain | cloud.eby | te.com | | | - | | | |
| Backup server | Disable | ✓ ackup | server por | 0 | • | | | |
| | 1 | | | | | | | _ |

3.2 MQTT mode

3.2.1 Standard MQTT3.1.1 connection

The standard M QTT3.1.1 connection here takes Tencent's standard M QTT 3.1.1 server as an example. The "three elements" of the standard description can be obtained from the Tencent server as shown in the figure below:

| Client ID | ELD0ERCUKDDEV01 复制 |
|---------------|--|
| MQTT Username | ELD0ERCUKDDEV01;12010126;B3GLI;1667511713 复制 |
| MQTT Password | 80ff56c、 |

Parameter configuration description is shown in the figure below:

| MQTT platform | STD ~ | |
|---------------|-------------------------------|------------------------|
| ClientID | 123456789 | |
| User name | Username | |
| password | КЕҮ | |
| Sub topic | SUB-Topic | Qos: 0 🗸 🗹 Sub |
| Pub topic | PUB-Topic Qos: 0 V Pub Timeou | it 3 🖨 Retry times 3 🌻 |

Configure the corresponding subscription publishing address, and use the platform online debugging to send data for communication testing:

| | 仅在开发编试阶段使用此功能,若设备已正式投入使用,下发闲意时请许信是否会影 | 泉炉的正常业务 | | |
|---------|---------------------------------------|--|---------------------|---------------------|
| 下发消息 | | | | |
| 王總沃志 | 在线 | 实时日志 | | |
| Topic • | ELD0ERCUKD/DEV01/SUB | 类型 | 时间 | 内容 |
| | topic不能为空 | 云靖下发消息 | 2021-09-13 13 56 52 | EBYTE-USERMQTT-TEST |
| oS • | 00 01 | M XCOM V2.6 | | |
| 18内容 · | EBYTE-USERMQTT-TEST | (2021-05-13 13:56:52 XX: EDITE-USEANNTT-T | | |
| | 调意内容不能为空,长度不大于16KB | | 收到服务器 | 下发数据 |

3.3 HTTP mode

The module supports access to the HTTP server as an HTTP client, and supports data interaction in the form of POST and GET.

3.3.1 GET request

Use HTTP server to test HTTP -GET request, configure parameters as shown below.

| C佰特・物联网应用专家 IoT APPLICATION EXP E | Essential information Link 1 Link 2 Advanced sett |
|--|---|
| Port CO × Baudr: 11 × — NETAT — D | ink Switch Enable 🗸 |
| Pram $8 \times 100 \times 1^{\circ}$ Open Password AT mode Re ^{•••} ms Sa | Protocol HTTP Cl: 🗸 Remote port 80 🗘 ort link ti 2s |
| ssential information Link 1 Link 2 Advanced sett ◀ | Remote IP/ |
| ink Switch Enable \vee | Backup ser Disable 🗸 up server 0 |
| -Basic Settings | Backup Ser |
| Protocol HTTP Cl: V UDPC Remote IP/domain TCPC | -Http settings |
| Backup server pc 0 | Method GET ~ |
| Backup Server ad Mul···ent | payload with header Enable $$ |
| | URL /devices/505619290/datapoints |
| | |
| | |

Return

XCOM V2.6

| XCOM V2.6 | | | × |
|--|---------------|-------------|------|
| [0002-10-10_00-21-01_024] | 串口选择 | | |
| [2023-10-10 09.31:01.634] TV: datastraam id=tast straam | COM5 · USB | -SERTAL CH3 | 4r ~ |
| [2023-10-10 09:31:03 122] | como. opp | DBILLAD OND | 36 . |
| RX: HTTP/1.1 200 OK | 波特室 | 115200 | ~ |
| Date: Tue, 10 Oct 2023 01:31:03 GMT | | | |
| Content-Type: application/json | 停止位 | 1 | ~ |
| Content-Length: 141 | 46.107.2 | 0 | |
| Connection: keep-alive | 委托指1立 | 8 | ~ |
| Access=Control=Allow=Headers: * | 检验位 | None | ~ |
| Access=Control=Allow=Urigin: * | 120212 | nonu | - |
| Server: Apache-Loyote/1.1 | 串口操作 | 美闭 | 串口 |
| | | | |
| {"errno":0, "data": {"count":1, "datastreams": [{"datapoints": [{"at": "2023-07-20 | 保存窗口 |] 清除措 | 制妆 |
| 11:17:54.796", "value":28}], "id": "test_stream"}]}, "error": "succ"} | | | |
| | | 亚小口 DIK | |
| | RTS | 自动 | 」保存 |
| | ☑ 时间戳 | 1000 | ms |
| | | | |
| 半宋友达 多余友法 协议传输 帮助 | | | |
| datastream_id=test_stream | | へと注 | |
| | | ~~~ | |
| | | | |
| | | ↓ 清除发 | 送 |
| | 文件 发送文件 | 停止发 | 送 |
| □ 16进制发送 □ 发送新行 0% 【火爆 | 全网】正点原子DS10 | 0手持示波器 | 上市 |
| Right a www.openedy.com St25 Right CTS-0.DSR-0.DCD | =0 当前时间 09:34 | 1.48 | |

3.3.2 POST request

Use HTTP server to test HTTP - POST request, configure parameters as shown below.

| (((・))) [®] 亿佰特・物联网应用专家 IoT APPLICATION EXP |
|--|
| Port CO × Baudr: 11 × Image: Co × Baudr: NETAT Image: Co × Baudr: Image: Co × Baudr: |
| Essential information Link 1 Link 2 Advanced sett |
| Link Switch Enable ~ |
| Protocol HTTP C1: V Remote port 80 🗘 ort link ti 2s |
| Remote IP/ |
| Backup ser Disable 🗸 up server 0 🜩 |
| Backup Ser |
| |
| Method POST ~ |
| payload with header Enable 🗡 |
| URL /devices/505619290/datapoints |

Return parameters after sending settings via serial port

| XCOM V2.6 | | _ | |
|--|----------|-------------|---------------------|
| [2022_10_11_10_02.EE_202] | | 串口选择 | |
| <pre>TX: { "datastreams": [["id": "test_stream", "datapoints": [["value":28]]}]}</pre> | | COM5: USB- | SERIAL CH34C \sim |
| [2023-10-11 10:08:58.068] RX: {"errno":0, "error": "succ"} | | 波特率 | 115200 ~ |
| | | 停止位 | 1 ~ |
| 3 | | 数据位 | 8 ~ |
| 1 | | 校验位 | None ~ |
| | | 串口操作 | 🛞 关闭串口 |
| | | 保存窗口 | 清除接收 |
| 9 | | 🗌 16进制县 | 記一 DTR |
| | | RTS | 🗌 自动保存 |
| | | ☑ 时间戳 | 1000 ms |
| 单条发送 多条发送 协议传输 帮助 | | | |
| ["datastreams":[{"id":"test_stream","datapoints":[{"value":28}]}]} | | - | 发送 |
| | | | 清除发送 |
| / 「 一 定时发送 周期: 1000 ms | 打开文件 | 发送文件 | 停止发送 |
| 6 □ 16进制发送 □ 发送新行 0% | 正点原子官方i | 仓坛http://ww | w. openedv. com/ |
| 😽 🔹 www.openedv.com S:66 R:26 CTS=0 DSR: | =0 DCD=0 | 前时间 10:10 | :11 |

3.4 SMS transparent transmission mode

In this mode, the data received by the serial port will be sent to the target phone number through SMS, and the content of the SMS sent to the module phone number will be transparently transmitted to the serial port output.

PC software configuration steps:

1. Check the box to enable SMS transparent transmission .

2. Set the SMS target phone number (if you only want to receive SMS messages, no need to set it).3. Check the message receiving number filtering (check if you only receive data from the target

phone number).

| MainWindow | - | | × |
|---|-------------------|------------------------|---------------------|
| ((・)) EBYTE 亿佰特・物联网应用专家 IoT APPLICATION EXPERT Target Model: •• | lick t | o <mark>swi</mark> tch | ዊ ድ E•••h |
| Pram 8 v No v 1 v Open | Sa…ni | G Recover | 兴: Reboot |
| ial information Link 1 Link 2 Advanced settings ◀ ▶ [2023-10-31 14:36 APN settings | 34.693 evice m |]# INF0: odel:EC0 | 5-485 |
| APN Disable ~ APN mode None ~ | | | |
| Access addressUser namePassword | | | |
| -SMS settings | | | |
| SMS fliter Disable ~ SMS transmission Enable ~ | | | _ |
| Telephone number | □ Wit | h .ear se | r Send |

3.5 Security configuration

Users can set a secure configuration password to enter the configuration or read parameter state. Users are required to perform password verification operations. Only after the passwords match successfully can parameter configuration be performed. If the login password is not sent within 30 seconds or the wrong password is sent, the module will automatically exit the configuration state.

PC software configuration steps:

- 1. Check the command mode security verification.
- 2、Set a secure password (0-32 bytes)
- 3. Save configuration
- 4、Reboot the device

| E MainWindow | |
|---|----------|
| ((・・)) [®] EBYTE 亿佰特・物联网应用专家 IoT APPLICATION EXPEN | RT |
| Port CC Baudr: 11 Image: Second sec | ig E |
| htial information Link 1 Link 2 Advanced settings | E2 Se |
| -SMS settings | |
| SMS fliter Disable ~ | |
| SMS transmission Enable | |
| Telephone number | |
| -Security configuration settings | |
| Security configuration Enable | |
| Security password NETAT | |
| Fast AT-serial port Disable ~ | |
| Fast AT-network Disable ~ | |
| Fast AT-SMS Disable ~ | .ea |

When entering the configuration, send +++, then send AT+PASSWORDSET=NETAT . After returning OK, you can continue to send other instructions.

| 2023-10-09 | 21:00:47.696] | |
|----------------------------------|--------------------------------|--|
| X: +++ 2023-10-09 X: OK | 21:00:48.700] | |
| 2023-10-09 X: AT+PASS | 21:00:49.652] WORDSET=NETAT | |
| 2023-10-09 X: OK | 21:00:50.660] | |
| 2023-10-09 X: AT+VER | 21:00:56.575] | |
| 2023-10-09 X: OK=FW-9165 | 21:00:57.580] -0-10 | |

3.6 Quick AT command

The fast AT command allows users to modify the device configuration through a single piece of data information through the serial port, network, and SMS, without the need to switch to command mode through "+++", which is convenient and fast.

PC software configuration steps:

 $1\,$ Turn on the fast AT command enablement, and you can choose to turn on fast serial port AT, fast network AT, and fast SMS AT .

- 2. Save configuration
- 3、Reboot the device

4. To send AT commands through the serial port, network, or SMS, you need to add the security password and keywords before the AT command (for example, the security password is "NETAT*",

and when sending the AT+VER command, you need to send NETAT*AT+VER). For details, see AT command manual.

Note: The AT command here needs to add a carriage return as the end character .

3.7 ModBus TCP to RTU

This function can be enabled by checking TCP Modbus. This function realizes mutual conversion between Modbus RTU data sent and received by the serial port and Modbus TCP data sent and received by 4G. Setting the conversion address can specify the corresponding device address to be converted. 0 means converting all addresses. For example, if it is set to 1, only address 1 will be converted, and instructions at address 2 will not be processed in any way.

| ((* ⁾⁾⁾ [®] 亿佰特・物联网应用专家 IOT APPLICATION EXPERT Targe |
|--|
| Port CO V Baudr: 11 Pram 8 V NO V 1 V Oben Vassword AT mode Revenus Savig Exvede |
| Essential information Link 1 Link 2 Advanced sett 4 Baudrate 1200 Pram 8 Pack time 0ms Serial Port Heartbeat settings |
| Heartbeat packet period Osec Heartbeat packet content |
| No data i 30min 🗘 Multi link protocol distributio Modbus R1 Disable 🗸 Modbus RTU/TCP conversion addre |
| |
| 本語語 ・ AGUT 中の ・ AGUT |

Convert all addresses

| tings | | | |
|--|---|--|---|
| 20: | A W.1.: 1:1 | -1.1 | |
| 301111 | • MULTI TINK protocol distribution En | abie | |
| | | | - |
| Enable | e ~ Modbus RTU/TCP conversion address 1 | | - |
| | ······· ························ | | |
| | | | 1.2 |
| | 网络奥战的手 一 一 × 番 xcom v2.6 | - | |
| 4/46设置 (1)协议类型 | #据日志 TCP 计按11版 NetAnsint V5.0.1 ♥ C 2003-10-09 21:36:36.607] RTU | 串口选择 | |
| TCP Server 💌 | 12023-10-09 21 36 35 451 14 3830 282 10 ALL> | COME : USB- | SERIAL CH34C ~ |
| (2) 本地主机地址 192.168.0.100 平 | | 波特率 | 115200 ~ |
| (3)本地主机端口 | T St Sk9 th bl | 1011112 | 1 ~ |
| | (1)大王(654)巴坦。 | 181-102-11 | 0 |
| peese | | 数据位 | 8 ~ |
| jeese | TEL 05531341. | 数据位 校验位 串口操作 | 8 V None V |
| 0000 ● 关闭 動物设置 C ASCII ← HEX | TT 1 055 18 11. | 數据位 校验位 串口操作 | 8 v None v |
| 10000 ● 关闭 割款设置 ○ ASCII ⓒ HEX 〒 扶日志模式20示 | TT 12 06631341. | 数据位 校验位 串口操作 保存窗口 ☑ 16讲和 | 8 ~ None ~ ● 关闭串口 清除接收 |
| ▶ 关闭 ● 关闭 ■ 秋设置 ○ ASCII (○ HEX 戸 扶日志模式显示 「 接收区自动执行 「 接收数据不显示 | T 12 0563134L | 数据位 校验位 串口操作 【保存面口 【16进制】 □ 8TS | 8 ~ Fone ~ 承除接收 显示□ DTR □ 自动保存 |
| ● 关闭 ● 大闭 ● ASCII ● NEX ● ASCII ● NEX ● 技田志模式置示 ■ 操收控目动执行 ■ 操收数据不显示 ■ 操收投行到文件 | TT 11 06631341. | 款線位 校验位 串口操作 保存面口 2 10进制 日本S ビ 时间額 | 8 ~ Fone ~ 使 关闭器口 清許接收 显示 DTE 自动保存 1000 as |
| ▶ 关闭 ● 关闭 ● 大同 ● ASCII ● MEX ■ 技田志模式显示 一播吸区自动执行 一播吸度自动执行 一播吸度有到文件。 自动定理 高純細胞 能注意置 | 1711055303AL | 款線位 税验位 串口操作 保存部口 ○ 16进制 ○ 575 ○ 5时间数 | 8 × Kone × 使 美術集口 清辞操改 置示 DTR 自动保存 1000 as |
| ▶ 关闭 新校设置 ○ ASCII ○ MIX 戸 拉田志模式显示 「接收交自动执行」 「接收发自动执行」 「接收发育到文件 自动发展 高能接触 致送设置 ○ ASCII ○ MIX | イトよ1 06-6-315341. 単泉友道 (多泉友道: (お公内編) 英語 「取工1 47-478 | 款援位 税延位 串口操作 保存範口 (保存範口) (保存範口) (保存範口) (保存範口) (保存範口) (保存範口) (保存範口) (保存範口) (保存範 (保存範)) (保存範) (保存範) (保存)(保存) (保存)(保存) (保存) (保存) (保存) (保存) | 8 × Kone × 承許接收 显示 DTR 自动保存 1000 ms |
| ▶ 5000 ◆ 共词 参次设置 ← ASCII © MAX 伊 採司名表現式 市 機物の資源和不显示 自然思想 本記書記書 和記書記書記書記書記 総定置 ← ASCII © MAX 同 公式 一 自然解析後次符 一 日記解析後次符 一 日記解析後次符 | イトよ1 06-6-3153-01. 単示交流 多示交流 均公将編 契約 第1717 AI 1928 | <u></u> 鉄板位 根口操作 使存高口 21 06活動 □ 1875 21 时间翻 | 8 ~ None ~ 第 关闭用口 有好接收 2示 UTR 自动保存 1000 ms |
| | 中京支援 多発支送 当応告報 契約 単立送 多発支送 当応告報 契約 新設法 第24歳 All Conserving (1) = + 約开 「 第8 七 第8 | 新規位 校验位 串口操作 ○ 16時間 ○ 1875 ○ 时间職 | 8 ~ None ~ 美術集の 高計接次 同時保存 1000 ms 发送 - 教祥友送 |

Only convert 1 address

3.8 APN access point

The module APN access point can be modified through AT commands . Requires APN card support .

| ebyte ^{《((} • ⁾⁾⁾ 。亿佰特 | ・物联网应用 ⁻ | 专家 IoT APPLICATION | I EXPERT |
|--|-----------------------|--------------------------------|--------------|
| Port CO × Baudr Pram 8 × NO × | c: 11 ∨ 💬 1 ∨ Oben | NETAT Passwort AT mode Re…m | ⊾ s Sa…ig |
| APN settings | Link 1 Lin | k 2 Advanced setting | s () |
| APN | Disable | ~ | |
| APN mode | PAP | | |
| Access address | s <u>0</u> | | |
| User name | 0 | | |
| Password | 0 | | |
| | | | |

3.9 Serial port upgrade function

Firmware upgrade is achieved by switching the firmware through the serial port and performing the upgrade .

The upgrade steps are as follows:

1. Double-click to run the Ebyte firmware burning tool

| 名称 | 修改日期 | 类型 | 大小 |
|----------------------|------------------|------|--------|
| B Ebyte固件烧录工具1.2.exe | 2022-12-14 10:36 | 应用程序 | 404 KB |

- 2. Select the download serial port and open the serial port
- 3. Import firmware package
- 4. Click to start the upgrade

| 信息框 | 第一步 打开下载串口 |
|-----------|---|
| 开始检测硬件!!! | 端口: 00/15 2 关闭串口 |
| | 第二步:选择固件包 E:\ 钉钉下载 \FW-9165-0-10-T24.ebin 固件导入 |
| | 第三步:开始自动升级 1:点击开始升级按钮 2:串口连接升级设备 3:重新启动设备 4:开始升级 5:升级完成-自动运行 |

- 5. Unplug the power jumper cap on the test board to power off the module. Then press and hold the Reload button on the test board (or pull down the module Reload pin) to power on. The other LED lights except PWR flash to indicate that the upgrade has started.
- 6. When the progress bar below the software is completed, you can close the software, indicating that the upgrade is complete.

| M 亿佰特串口升级工具 V1.2 | × |
|---|---|
| 信息框 已检测到硬件!!! 开始下载固件!!! 下载固件完成!!! 硬件开始自动运行!!! | 第一步 打开下载串口 端口: COM5 关闭串口 第二步: 选择固件包 E:\钉钉下载 |
| | 第三步:开始自动升级 1:点击开始升级按钮 2:串口连接升级设备 3:重新启动设备 4:开始升级 5:升级完成-自动运行 |
| L. L. | |

3.10 Hardware factory reset

Restore the factory default parameters. After powering on, press the test board RELOAD key (or pull down the RELOAD pin of the module) for $5 \sim 6$ seconds until all LEDs light up, and then release it to restore the module parameters to the factory default parameters, and the module will automatically restart.

3.11 Serial port parameter settings

Serial port baud rate supports 1200/2400/4800/9600/19200/38400/57600/115200/230400 Data bits support 8 bits

Stop bit supports 1/2 bits

Packaging time supports 0-1024 (unit: ms, 0 is automatic)

Packet length supports 50-1024 bytes (default 1024)

MainWindow

| (((・))) [®] 亿佰特・物联网应用专家 IOT APPLICATION EXPERT | T |
|---|------------|
| Port CO ~ Baudr: 11 ~ Image: Constraint of the second seco | [Ex |
| Essential information Link 1 Link 2 Advanced sett () SIM card sta No SIM card or SIM card abnormality CSQ Net Status Normal connection to the base station or connection | [20 Sel |
| -Serial port params settings | |
| Pram 8 V NONE V 1 V Pack time Ome Pack longth 1024 | |

There are two situations when the serial port is packaged into frames. The first is time-triggered framing, and the second is length-triggered framing.

Time-triggered framing: When receiving data from UART, the interval between two adjacent bytes will be continuously checked. If the interval time is greater than or equal to a certain "time threshold", it is considered that a frame has ended, otherwise data will be received until it is greater than or equal to the set packaging length bytes. Send this frame of data to the network as a TCP or UDP packet. The "time threshold" here is the packaging interval. The settable range is 0 ms~ 1024 ms. The factory default is 0ms , which is automatic recognition .

Length-triggered framing: When receiving data from the UART, the length-triggered mode will continuously check the number of bytes received. If the number of bytes received is equal to a certain "length threshold", it is considered that a frame has ended, otherwise it will wait for the end of the packaging time. Send this frame of data to the network as a TCP or UDP packet. The "length threshold" here is the packaging length. The settable range is $5.0 \sim 1024$. Factory default 1024

3.12 NTP time acquisition

The module supports NTP time acquisition, which can be obtained through the host computer or AT command. The acquisition command is AT+NTP. The return value is such as 2022.12.31,12:25:35.

[2023-10-09 21:05:10.436] TX: AT+NTP [2023-10-09 21:05:11.454] RX: +0K=2023/10/09,21:05:10

3.13 Restart without data

In order to prevent the module from working abnormally after working for a long time, you can set the no-data restart time. When the module does not receive the server downlink data, when the no-data restart time is reached, the module will automatically restart to ensure stable operation, 0-14400 minutes can be set, the default is 30 minutes.

| -Other settings | |
|---|--|
| No data 1 14400min 🖨 Multi link protocol distribution | |
| Modbus R1 Disable > Modbus RTU/TCP conversion addres | |

4. Important statement

- Ebyte reserves the right of final interpretation and modification of all contents in this manual.
- Due to the continuous improvement of product hardware and software, this manual may be changed without prior notice. The latest version of the manual shall prevail.

• Users of this product need to go to the official website to pay attention to product updates so that users can obtain the latest information on this product in a timely manner.

Revise history

| Version | Revision date | Revision Notes | Maintenance man |
|---------|---------------|-----------------|-----------------|
| 1.00 | 2023-12-14 | initial version | LYL |

About Us

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