Chengdu Ebyte Electronic Technology Co.,Ltd

# Wireless Modem

## User Manual

ME31-XEXX0600

# E810-DTU(CAN-ETH)

# Industrial CAN to Ethernet DTU




All rights to interpret and modify this manual belong to
Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Content

DISCLAIMER ..... 3
1. PRODUCT OVERVIEW ..... 4
1.1 PRODUCT BRIEF ..... 4
1.2 PERFORMANCE CHARACTERISTICS ..... 4
1.3 TYPICAL APPLICATIONS ..... 4
2. QUICK USE ..... 5
2.1 EQUIPMENT USE ..... 5
2.2 DEFAULT PARAMETERS ..... 5
2.3 WEB INTRODUCTION AND CONFIGURATION ..... 7
2.4 DESCRIPTION OF COMMUNICATIONS ..... 9
2.4.1.SOCKET USAGE DESCRIPTION ..... 9
2.4.2.TCP CLIENT USAGE DESCRIPTION ..... 10
2.4.3.TCP SERVER USAGE DESCRIPTION ..... 11
2.4.4.UDP CLIENT USAGE DESCRIPTION ..... 13
2.4.5.UDP SERVER USAGE DESCRIPTION ..... 14
3 INTRODUCTION TO HARDWARE PARAMETERS ..... 16
3.1 MAIN SPECIFICATION PARAMETERS ..... 16
3.2 MECHANICAL DIMENSION DRAWINGS AND PIN DEFINITIONS ..... 16
3.3 CONNECTION METHOD ..... 19
3.3.1.ETHERNET CONNECTION METHOD ..... 19
3.3.2.CAN CONNECTION METHOD ..... 19
4 PRODUCT FEATURES ..... 20
4.1 NETWORK INFRASTRUCTURE FUNCTIONS ..... 20
4.1.1.INTRODUCTION TO IP ADDRESSES ..... 20
4.1.2. INTRODUCTION TO SUBNET MASKS ..... 20
4.1.3. INTRODUCTION TO GATEWAYS ..... 20
4.1.4. INTRODUCTION TO DNS ..... 20
4.1.5. DATA PACKAGING MECHANISMS ..... 21
4.1.6. SOCKET FUNCTION ..... 21
4.1.7. TCP CLIENT FUNCTION ..... 21
4.1.8.TCP SERVER FUNCTIONS ..... 22
4.1.9. UDP CLIENT FUNCTIONS ..... 22
4.1.10. UDP SERVER FUNCTIONS ..... 23
4.2 CAN BASIC FUNCTIONS ..... 23
4.2.1.INTRODUCTION TO CAN ..... 23
4.2.2.DATA PROTOCOLS ..... 24
REVISION HISTORY ..... 28



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

# Disclaimer

EBYTE reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of EBYTE is strictly prohibited.

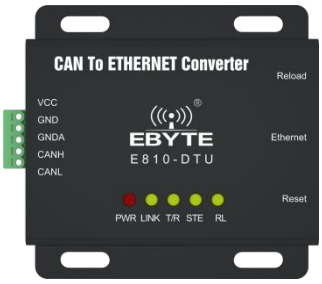
The information contained herein is provided “as is” and EBYTE assumes no liability for the use of the information. No warranty, either express or implied, is given, including but not limited, with respect to the accuracy, correctness, reliability and fitness for a particular purpose of the information. This document may be revised by EBYTE at any time. For most recent documents, visit www.ebyte.com.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

# 1. Product Overview

## 1.1 Product Brief




E810-DTU(CAN-ETH) is a high-performance CAN-bus communication interface DTU which integrates 1 CAN interface and 1 Ethernet interface. with E810-DTU(CAN-ETH) high-performance DTU, users can easily interconnect CAN-bus network and Ethernet network.

The E810-DTU(CAN-ETH) is a CAN-to-Ethernet module that supports TCP/IP network protocol. E810-DTU(CAN-ETH) is a CAN-to-Ethernet module supporting TCP/IP network protocol. It supports adaptive network rate (up to 100M full-duplex), and provides four working modes: TCP Server, TPC Client, UDP Server, UDP Client, and helps users to efficiently complete the bi-directional transparent data transmission between TCP/UDP and CAN. The device also supports two-way SOCKET operation, and can be configured by WEB page.

E810-DTU(CAN-ETH) is easy to operate, flexible and efficient in data transmission, and highly reliable, which can help users quickly establish a stable and reliable data transmission environment and easily realize data transmission.

## 1.2 Performance characteristics

CAN Attributes

- Integrates 1 CAN-bus interface;
- CAN-bus signals include: CAN_H, CAN_L
- CAN-bus supports CAN2.0A and CAN2.0B frame format, conforms to ISO/DIS 11898 specification;
- CAN-bus communication baud rate ranges from 6Kbps to 1Mbps with 15 baud rates;
- CAN-bus interface CAN-bus interface with electrical protection; common mode inductor to effectively remove common mode noise;

Ethernet attributes

- Standard Ethernet interface, RJ45, supports 10/100M adaptive;
- Heartbeat packet, registration packet, short connection, KeepAlive, clear cache, and timeout reboot function;
- Modbus TCP to RTU function;
- Transmission cloud (Yibaiyut cloud);
- WEB page settings; Working port, IP target working port, target IP and target port can be set;
- supports two SOCKET working at the same time and four SOCKET working modes (TCP Server, TCP Client, UDP Server, UDP Client);

## 1.3 Typical applications

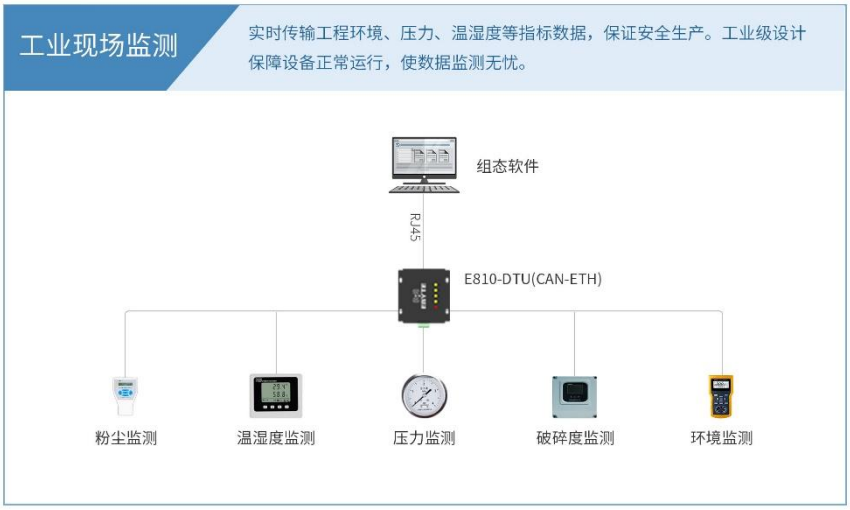
- CAN-bus network diagnostics and testing: real-time CAN-bus diagnostics.
- Industrial Ethernet connection to CAN network: industrial field data remote transmission.
- Power communication network, industrial control equipment: remote communication, industrial field control.
- Building control: real-time building information, transmission to remote server coordination.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Mine monitoring: real-time transmission of mine pressure, dust, temperature and humidity data.
- Charging pile: real-time monitoring of each charging pile status, timely control of the project status.




# 2. Quick use

## 2.1 Equipment use

E810-DTU (CAN-ETH) uses +8~28V DC power supply (+12V or +24V standard power supply is recommended). When the device gets normal power supply, you can use the WEB page to configure its working mode and basic operating parameters (WEB page configuration method 4.9 WEB introduction and configuration).

## 2.2 Default parameters

| | |
|---|---|
| IP acquisition type | STATIC |
| IP address | 192.168.4.101 |



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

| | |
|---|---|
| Subnet mask | 255.255.255.0 |
| Gateway | 192.168.4.1 |
| DNS | 61.139.2.69 |
| Alternate NDS | 192.168.4.1 |
| CAN baud rate | 100 kbps |
| Packetization time | 10 (milliseconds) |
| Packetization length | 1000 (bytes) |
| Filtered frame type | Receive all frames |
| Socket A1 basic parameters | TCPS,192.168.4.101,8886 |
| Socket A1 heartbeat packet mode | NET |
| Socket A1 heartbeat packet content | 0 (seconds), disable heartbeat packet function |
| Socket A1 register packet mode | heartbeat msg |
| Socket A1 register packet time | OFF |
| Socket A1 register packet content | regist msg |
| Socket A1 short connection time | 0 (seconds), turns off short connection feature |
| Socket A1 keepalive parameters | time/inteval/probes = 10 (seconds)/5 (seconds)/30 (times) |
| Socket A1 Empty Cache Function | OFF, turns off |
| Socket B1 Basic Parameters | TCPC,192.168.4.100,8887 |
| Socket B1 Heartbeat Packet Mode | NET |
| Socket B1 Heartbeat Packet Time | 0 (seconds), turns off heartbeat packet feature |
| Socket B1 Heartbeat Packet Contents | heartbeat msg |
| Socket B1 Registered Packet Mode | OFF |
| Socket B1 Registered Packet Contents | regist msg |
| Socket B1 Short Connection Time | 0 (seconds), off short connection function |
| Socket B1 keepalive Parameters | time/inteval/probes = 10 (seconds)/5 (seconds)/30 (times) |
| Socket B1 clear cache function | OFF, off |
| Cloud passthrough switch | OFF, off |
| Tcp server maximum allowed connections | 6 (pcs) |
| intranet discovery port | 1901 |
| intranet discovery passphrase | www.cdebyte.comwww.cdebyte.com |
| web web port | 80 |
| web login username/password | admin/admin |
| timeout restart time | 3600（s） |



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

## 2.3 WEB Introduction and Configuration

The module supports web page configuration, users can use any browser, enter the module IP address and port (the default IP address 192.168.4.101 browser default port is 80), login successfully to enter the web page (the default user name and password are admin). As shown in the figure:



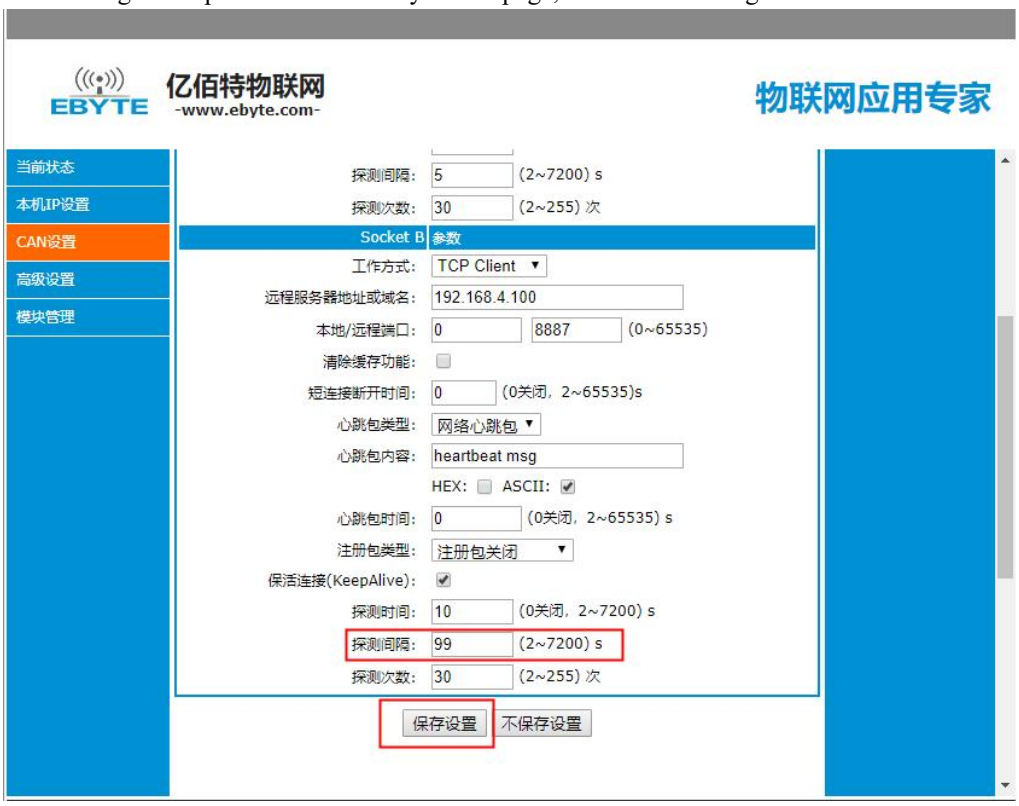

Parameters are browsed and configured after selecting a page according to specific needs (CAN settings as an example).



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




After filling in the parameters correctly on the page, click Save Settings.




The page will automatically jump to the module management page. After clicking Restart Module, the module restarts and the set parameters take effect.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




## 2.4 Description of communications

Preparation before communication:

an E810-DTU (CAN-ETH), a CAN analyzer (used to analyze, send and receive data on the CAN bus, CAN analyzer one end of the CAN bus, one end of the USB, can be directly connected to the computer to use, through the use of the CAN analyzer software), the E810-DTU (CAN-ETH) and CAN analyzer CAN_H, CAN_L connected to form a communication network. CAN_L to form a communication network. In the same PC, CAN analyzer software and network debugging tools can be used to realize mutual communication.

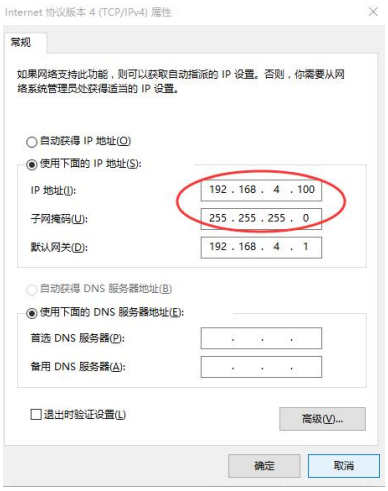
### 2.4.1.SOCKET Usage Description

1. Set the PC computer IP segment address to be the same as the E810-DTU (CAN-ETH) with the same subnet mask, e.g., the IP of the PC side is 192.168.4.100 and the IP of the module is 192.168.4.101;

PC side configuration:



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




Module-side configuration:




## 2.4.2.TCP Client Usage Description

1, open the PC network debugging assistant, here to "Caveman network debugging assistant" as an example, the protocol type is set to TCP Server, the local IP and port were set to 192.168.4.100,8886.




2、Set the device SOCKET A1 network type to TCPC (TCP Client), the destination IP to 192.168.4.100, the local port 0



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

(random port), and the destination port 8886. click Save and restart the module.




3、Open the CAN analyzer software, select the correct COM port and baud rate, to be connected to the device on the TCP Server, and "network debugging assistant" for communication testing.

The figure shows that the network sends a standard data frame, CAN send ID 0x00 0x00 0x00 0x01, data 0x11 0x22 0x33 0x44 0x55, the data sent need to comply with the data format (see CAN basic functions - data protocol).




## 2.4.3.TCP Server Usage Description

1、Set the "Network Debugging Assistant" to TCP Client, the remote host IP to 192.168.4.101, and the remote host port number to 8886.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




2、Set the device SOCKET A1 network type to TCPS (TCP Server) and local port 8886. click Save and reboot the module.




3、Open the CAN analyzer software, select the correct COM port and baud rate, click on the "network debugging assistant" connection, to be connected to the device, the communication test.

The figure shows that the network sends a standard data frame, CAN send ID 0x00 0x00 0x00 0x01, data 0x11 0x22 0x33 0x44 0x55, the data sent need to comply with the data format (see the details of the basic functions of the CAN - data protocol).





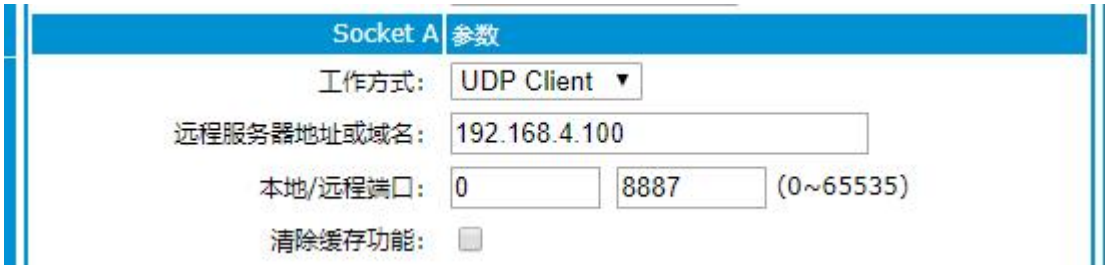

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

## 2.4.4.UDP Client Usage Description

1, the “network debugging assistant” is set to UDP (this host does not distinguish between UDP Client and UDP Server), the local host IP is set to 192.168.4.100, and the local host port number is set to 8887.




2、Set the device SOCKET A1 network type to UDPC (UDP Client), the destination IP to 192.168.4.100, and the destination port to 8887. click Save and restart the module.




3、Open the CAN analyzer software, select the correct COM port and baud rate, click on the “network debugging assistant” connection, to be connected to the device, the communication test.

The figure shows that the CAN analyzer sends a standard data frame, id 0x00 0x00 0x06 0x66 data 0x01 0x02 0x0A 0x0B 0x0C 0x0D 0x0E 0x0F, the data received by the network side is in line with the data format (for details, please refer to the basic functions of the CAN - data protocol).



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



## 2.4.5.UDP Server Usage Description

1、Set "Network Debugging Assistant" to UDP (this host does not distinguish between UDP Client and UDP Server), the local host IP to 192.168.4.101, the local host port number to 8886, and the remote host to 192.168.4.101: 8887. 8887.

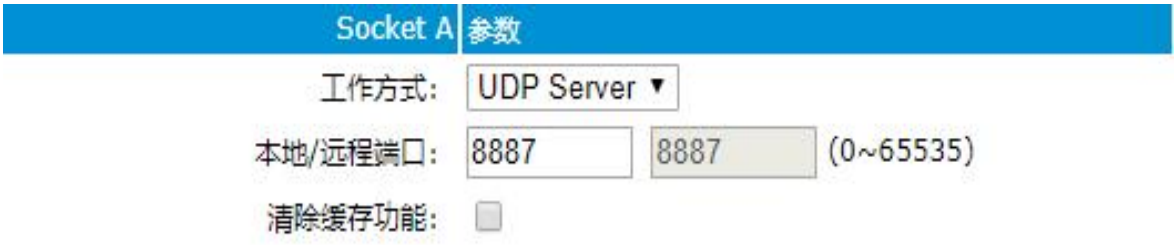



2、Set the device SOCKET A1 network type to UDPS (UDP Server), the local IP to 192.168.4.101, and the local port to



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8887. click Save and restart the module.




3、 Open the CAN analyzer software, select the correct COM port and baud rate, click on the “network debugging assistant" connection, to be connected to the device, the communication test.

The figure shows that the network sends a standard data frame, CAN send ID 0x00 0x00 0x00 0x01, data 0x11 0x22 0x33 0x44 0x55, the data sent need to comply with the data format (for details, see CAN Basic Functions - Data Protocol).






Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

# 3 Introduction to Hardware Parameters

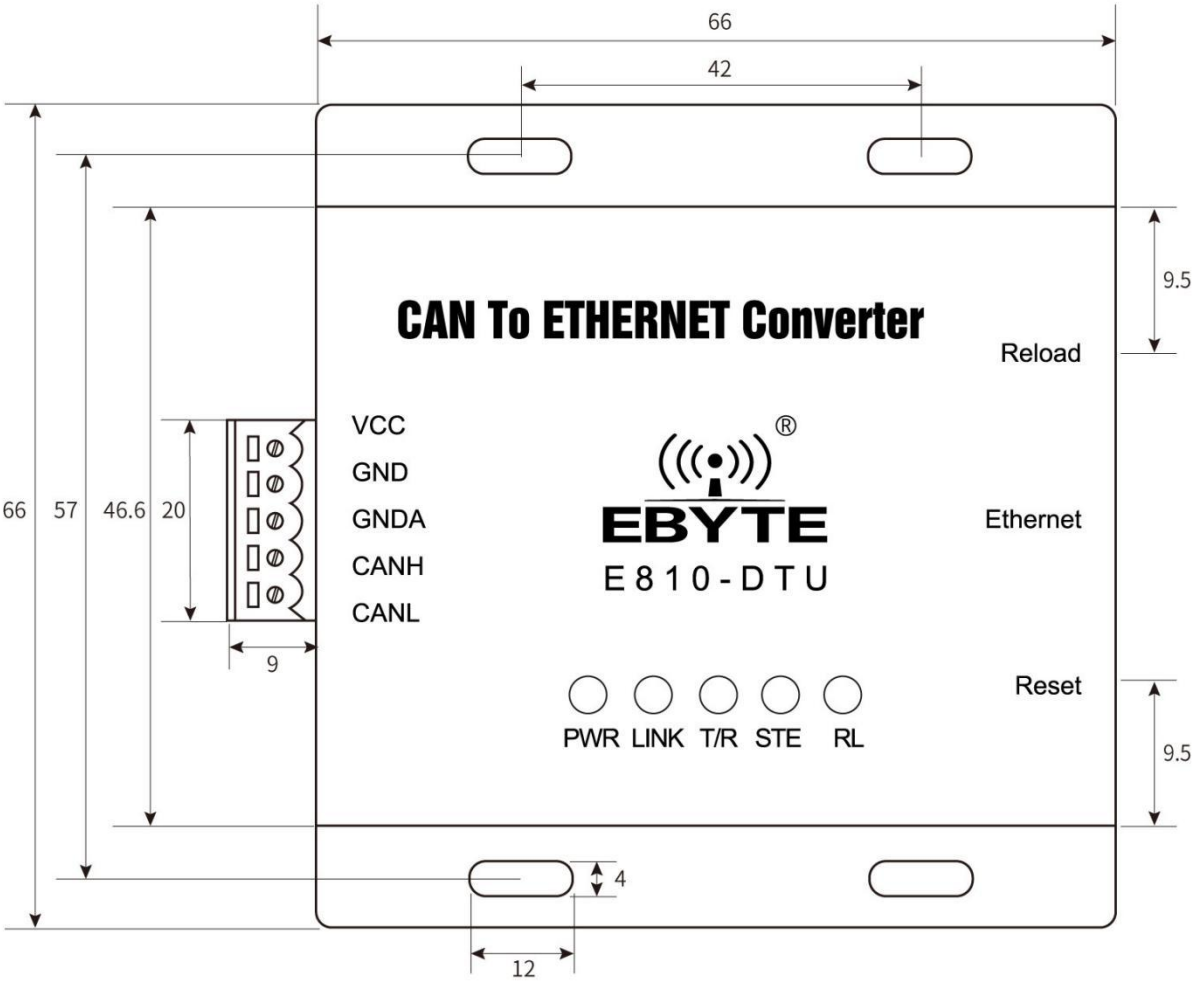
## 3.1 Main specification parameters

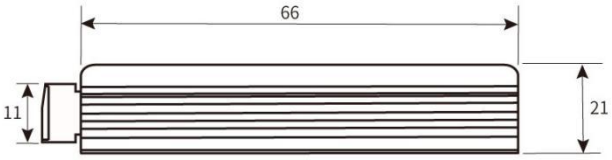
| No | Parameters | Specifications |
|---|---|---|
| 1 | Interface mode | Ethernet:RJ45 ,10/100Mbps |
| 2 | Network protocol | CAN:1*5*3.81,Crimp mode |
| 3 | Simple passthrough method | IP, TCP/UDP, ARP, ICMP, IPV4 |
| 4 | Data packing mechanism | TCP Server, TCP Client, UDP Server, UDP Client, Cloud Passthrough |
| 5 | TCP Server connection | Byte Packing and Time Packing |
| 6 | IP acquisition method | Supports up to 6 TCP connections |
| 7 | Domain name resolution | Static IP, DHCP |
| 8 | CAN transmission baud rate | Support |
| 9 | CAN filtering mode | 15 baud rates from 6Kbps-1000Kbps |
| 10 | CAN data format | Up to 8 filtering modes |
| 11 | Parameter configuration | Protocol format |
| 12 | Operating current | WEB page configuration |
| 13 | Supply Voltage | 8V~28VDC, over 28V may burn the product, recommend 12V or 24V power supply |
| 14 | Operating Temperature | -40 ~ +85℃, industrial grade |
| 15 | Operating Humidity | 10% ~ 90%, relative humidity, non-condensing |
| 16 | Product Dimensions | 66*66*21 (mm) |
| 17 | Average Weight | |
| 18 | PCB Process | 2 Layer Board |
| 19 | Storage Temperature | -40 ~ +125℃, Industrial Grade |

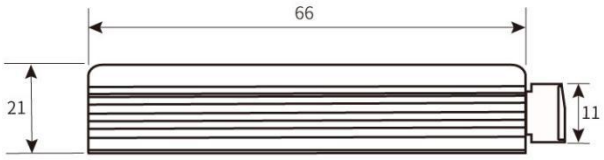
## 3.2 Mechanical Dimension Drawings and Pin Definitions

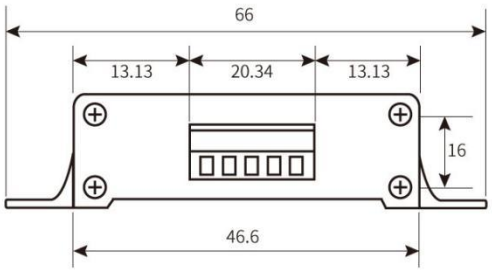


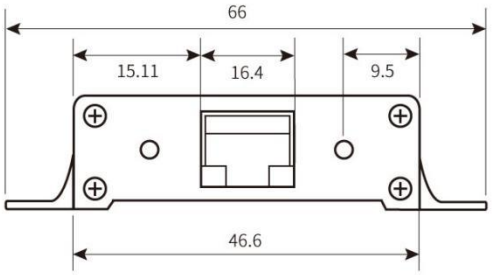
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

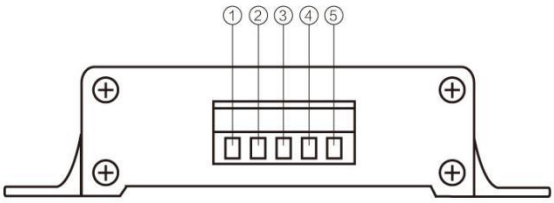


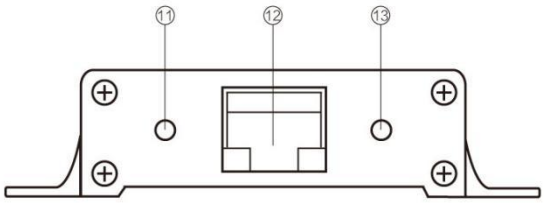



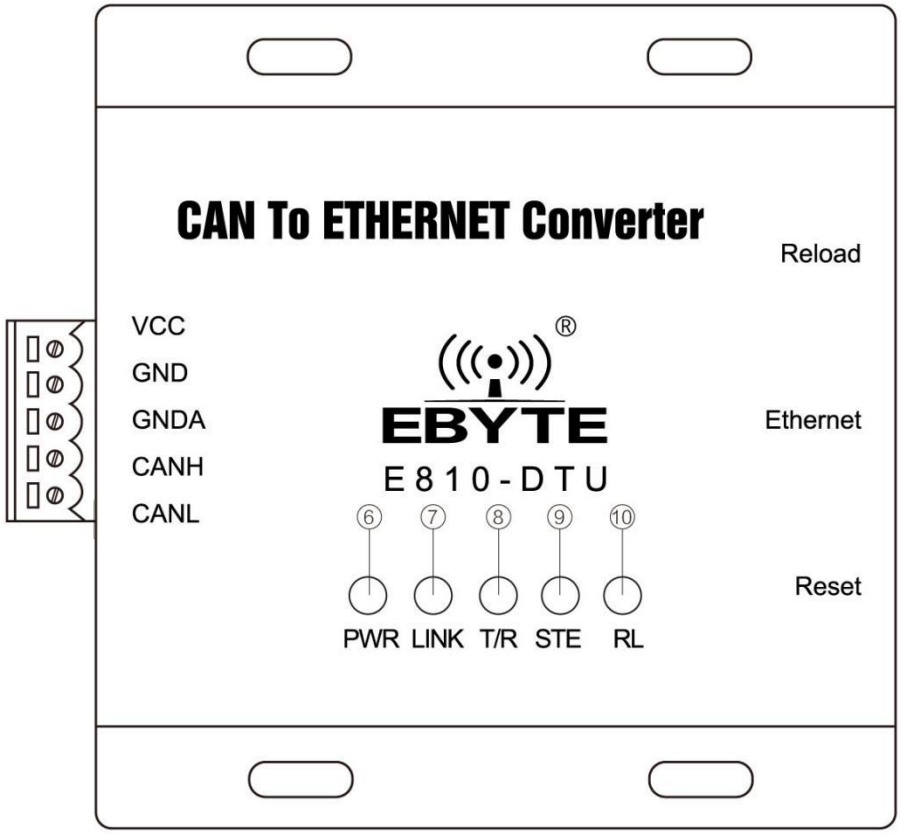




Copyright@2025，Chengdu Ebyte Electronic Technology Co.,Ltd.


Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




| No | Name | Usage |
|---|---|---|
| 1 | VCC | Power supply, default 8-28V (can be customized to standard 5V version), 12V/24V recommended |
| 2 | GND | Power ground |
| 3 | GNDA | Signal reference ground |
| 4 | CANH | CAN communication interface,can bus H |
| 5 | CANL | CAN communication interface, can bus L |
| 6 | PWR | Power indicator |
| 7 | LINK | Connection indicator |
| 8 | T/R | - |
| 9 | STE | Status indicator |
| 10 | RL | Restore factory settings indicator |
| 11 | Reset | Reset setting button |
| 12 | Ethernet | RJ45 interface |
| 13 | Reload | Restore factory settings button, long press 5-10S device restores factory settings |



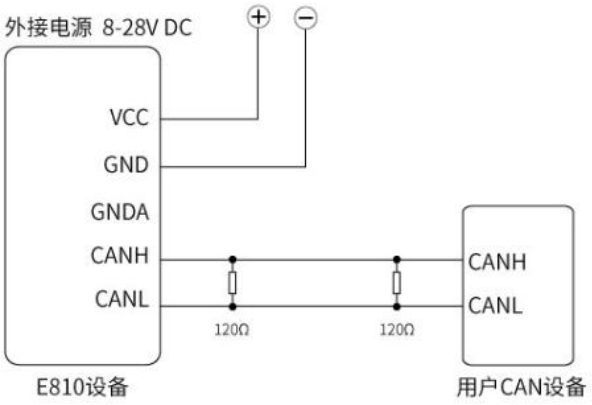
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

## 3.3 Connection method

### 3.3.1.Ethernet connection method




### 3.3.2.CAN connection method




Note: When CAN bus high-frequency signal transmission, the signal wavelength is relatively short compared to the transmission line, the signal will form a reflection wave at the end of the transmission line, which will interfere with the original signal, so it is necessary to add a termination resistor at the end of the transmission line, so that the signal will not be reflected when it reaches the end of the transmission line. The terminating resistor should be the same as the impedance of the communication cable, with a typical value of 120 ohms. Its role is to match the bus impedance, to improve the anti-interference of data communication and reliable line.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

# 4 Product Features

## 4.1 Network infrastructure functions

### 4.1.1.Introduction to IP addresses

IP address refers to the Internet Protocol address, which indicates the identity of the module in the LAN.IP address is unique in the LAN, so it can not be duplicated with the address of other devices in the same LAN.E810-DTU(CAN-ETH) supports two types of IP obtaining methods: static IP and DHCP.

Static IP: Static IP is required to be set manually by the user. During the setting process, pay attention to write IP, subnet mask and gateway at the same time. Static IP is suitable for LAN without DHCP Server or fixed IP address for LAN communication.

DHCP: The main function of DHCP is to obtain IP address, gateway address and NDS server address information dynamically from the gateway host (with DHCP server). Through DHCP, users can save the tedious steps of setting IP address manually, and avoid the problem of LAN IP address conflict due to manual setting of IP address.

### 4.1.2. Introduction to subnet masks

A subnet mask is a type of mask that is used to indicate which network the host identified by the IP address is on. A subnet mask cannot stand alone; it needs to be used in conjunction with an IP address, and it serves to divide a given IP into two parts: the network address and the host address.

A subnet mask is a 32-bit address, and the default subnet mask is 255.0.0.0 for class A addresses, 255.255.0.0 for class B, and 255.255.255.255.0 for class C. For example, for our commonly used class C addresses, the capacity of IPs in the subnet is one, but since all 0s and all 1s are special IP addresses, there are no IPs in the subnet, so there are no IPs in the subnet. 1 are special IP addresses, the number of available IPs in the class C subnet mask is 254.

### 4.1.3. Introduction to gateways

A gateway, also known as an inter-network connector, enables interconnection between two networks. If the device is connected to a router, the gateway is the router IP address. The device can access the other network (or LAN) to which the gateway is connected through the gateway.

### 4.1.4. Introduction to DNS

DNS is known as Domain Name System. In the World Wide Web (www) as the domain name and IP address of the mutual mapping of the distribution is the database. After the device carries on the correct DNS server, can through the network domain name and the extranet (World Wide Web) server to carry on the data interaction.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

### 4.1.5. Data packaging mechanisms

Since the data on the network side are transmitted in data frames, it is necessary to compose the frame data to be sent to the network side via CAN, so that the data can be transmitted more efficiently and quickly.
Serial port packing time: default is 10ms, can be set, the range is: 0 ~ 1000.
Serial port packing length: default is 1000 bytes, can be set, the range is: 0 ~ 1000.
Note: when one of the two parameters are not 0, the packing rule is to satisfy any one of the data packing;
when one of the parameter is 0, the packing rule is the other non-zero value;
when one of the two parameters are 0, the packing rule is the default parameter value: 0. When one of the parameters is 0, the packing rule is another non-zero value; when both parameters are 0, the packing rule is the default parameter value: 10ms/1000 bytes.

### 4.1.6. SOCKET function

E810-DTU(CAN-ETH) can create two sockets, Socket A1, Socket B1. where Socket A1 supports all types of TCP Client, TCP Server, UDP Client, UDP Server. socket B1 supports only TCP Client, UDP Client, UDP Server types.
The two sockets are running at the same time. You can connect to different networks at the same time to transfer data.

### 4.1.7. TCP Client Function

(1) TCP Client provides client connection for TCP network service. It takes the initiative to initiate a connection request to the server and establishes a connection, which is used to realize the interaction of serial port data and server data. According to the relevant provisions of the TCP protocol, TCP Client has the difference between connecting and disconnecting, so as to ensure the reliable exchange of data. Usually used for data interaction between devices and servers, it is the most commonly used networking communication method.

(2) When the E810-DTU(CAN-ETH) tries to connect to the server in TCP Client mode and the local port is 0, the connection is initiated with a random port each time.

(3) This mode supports short connection function.

(4) In the same LAN, if E810-DTU(CAN-ETH) is set to static IP, please keep the IP of E810-DTU(CAN-ETH) and gateway in the same network segment and set the gateway IP correctly, or it will not be able to communicate normally.






Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

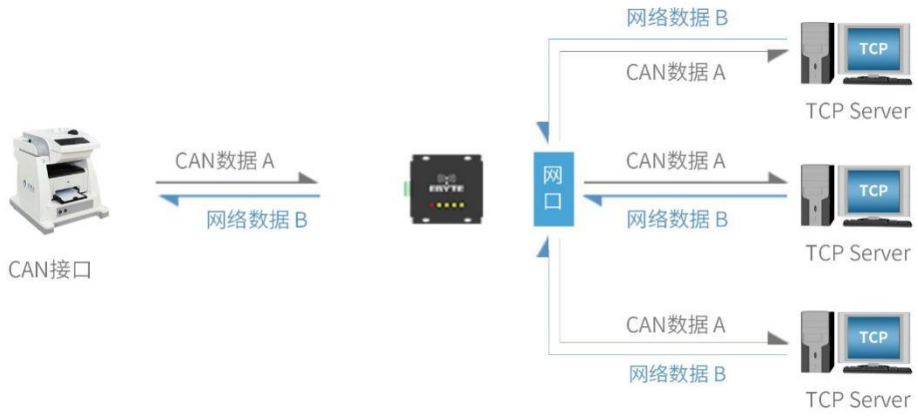
### 4.1.8.TCP Server Functions

(1) TCP Server means TCP server. In TCP Server mode, E810-DTU(CAN-ETH) listens to the local port, accepts and establishes connection for data communication when there is a connection request, when E810-DTU(CAN-ETH) receives the data on the serial port, it will send the data to all the client devices that have established connection with E810-DTU(CAN-ETH) at the same time.

(2) Usually used for communication with TCP clients in LAN. It is suitable for the scenario that there is no server in the LAN and there are many computers or cell phones requesting data from the server. Like TCP Client, there is a difference between connection and disconnection to ensure reliable data exchange.

(3) E810-DTU(CAN-ETH) can accept up to 6 Client connections (the number of connections can be customized), and the local port number is fixed and cannot be set to 0 if E810-DTU(CAN-ETH) is used as TCP Server.

(4) TCP Server can set the maximum number of connections, when the connection reaches the maximum number, you can choose to kick off the old connection or prohibit the establishment of new connection function according to the configuration through the command.




### 4.1.9. UDP Client Functions

(1) UDP Client is a connectionless transport protocol that provides a simple and unreliable transaction-oriented messaging service. There is no connection to make or break, and only the IP and port need to be established to send data to the other party. It is usually used in data transmission scenarios where there is no requirement for packet loss, the packets are small and sent quickly, and the data is to be transmitted to a specified IP.

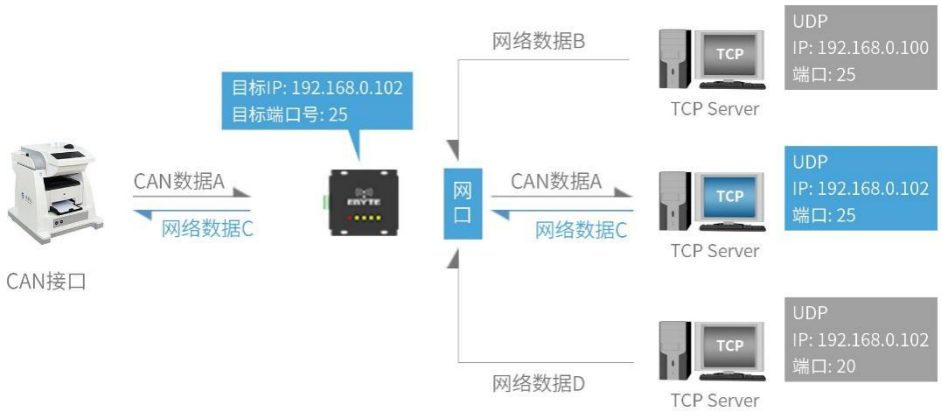
(2) In UDP Client mode, the E810-DTU(CAN-ETH) will only communicate with the target port of the target IP, and if the data does not come from this channel, the data will not be received by the E810-DTU(CAN-ETH).

(3) In UDP Client mode, if the destination address is set to 255.255.255.255, it can achieve the effect of UDP broadcasting in all network segments, and also receive broadcasting data. E810-DTU(CAN-ETH) supports the



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

broadcasting in the supported network segments, for example, the broadcasting method of xxx.xxx.xxx.255.




### 4.1.10. UDP Server Functions

(1) UDP Server means that the source IP address is not verified on the basis of normal UDP, and every time a UDP packet is received, the destination IP is changed to the IP and port number of the data source, and when the data is sent, it is sent to the IP and port number of the most recent communication.
(2) This mode is usually used in data transmission scenarios where multiple network devices need to communicate with the module and do not want to use TCP due to faster speed and frequency.
Note: The UDP Server cannot send data actively, but only after receiving data, it can send the data to the IP and port where the most recent data interaction took place.




## 4.2 CAN Basic Functions

### 4.2.1.Introduction to CAN

CAN stands for Controller Area Network (hereinafter referred to as CAN), which means Controller Area Network in



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chinese, and is a serial communication protocol standardized by ISO. In the automotive industry, a variety of electronic control systems have been developed to meet the requirements for safety, comfort, convenience, low pollution, and low cost. Since the types of data used for communication between these systems and the requirements for reliability vary, there are many cases in which multiple buses are used, and the number of wiring harnesses has increased. In order to meet the needs of “reducing the number of wiring harnesses” and “high-speed communication of large amounts of data over multiple LANs,” Bosch, a German electrician, developed the CAN communication protocol for automobiles in 1986. Since then, CAN has been standardized by ISO11898 and ISO11519, and is one of the most widely used field buses in the world, and has become the standard protocol for automotive networks in Europe.

The high performance and reliability of CAN has been recognized and is widely used in industrial automation, ships, medical equipment, industrial equipment and so on. Fieldbus is one of the hotspots of technological development in the field of automation today, and is known as the computer LAN in the field of automation. Its appearance for the distributed control system to achieve real-time, reliable data communication between the nodes provides strong technical support.CAN communication only has two signal lines, respectively CAN_H and CAN_L, CAN controller according to the potential difference between these two lines to determine the bus level. The bus level is categorized into explicit level and implicit level, and one of the two must reside in the other. The sender sends a message to the receiver by changing the bus level.

CAN protocol features:

- Multi-master control.
- Flexibility of the system.
- Higher communication speed and longer distance. Up to 1Mbps (distance less than 40M) and up to 10KM (rate less than 5Kbps).
- Error detection, error notification and error recovery functions.
- Fault closure function.
- Many connected nodes.

### 4.2.2.Data protocols

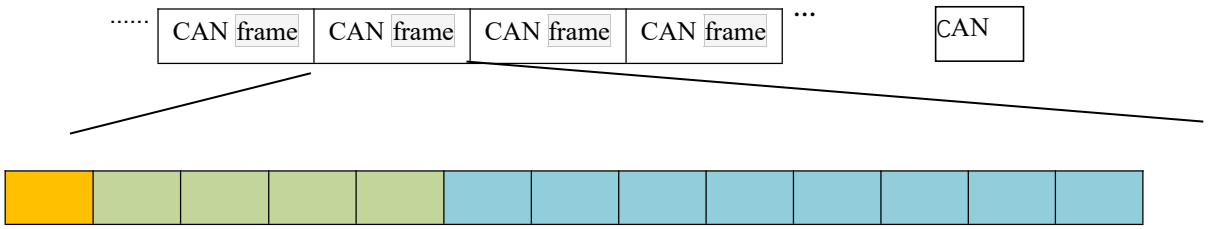
When the network side of the E810-DTU (CAN-ETH) sends data to the CAN side, the data sent needs to conform to the data protocol before it can be sent out from the CAN bus. Similarly, when the CAN side of the E810-DTU(CAN-ETH) receives data from the CAN bus, it will process the data into data that conforms to the data protocol before sending it to the network side.

One Ethernet data can contain multiple CAN bus data compliant with the data protocol.

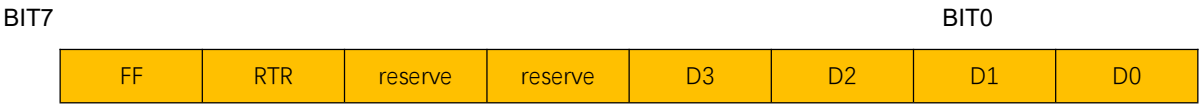
The data protocol conversion format of the E810-DTU (CAN-ETH) module is shown below. Each CAN frame contains up to 13 bytes, and the content of the 13 bytes includes CAN frame information + frame ID + frame data.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




Frame Information: 1 byte in length, used to identify some information of the CAN frame, such as type, length, etc.




FF: Identifier bit for standard and extended frames, 1 for extended frames, 0 for standard frames.

RTR: Remote frame and data frame identification bit, 1 is remote frame, 0 is data frame.

Reserved: Reserved value is 0, no 1 can be written.

D3 to D0: Data length bits, identify the data length of this CAN frame.

Frame ID: 4 bytes in length, standard frame valid bit is 11 bits, extended frame valid bit is 29 bits.



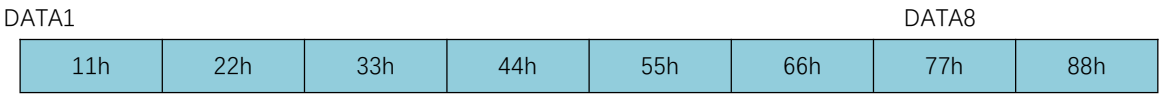

Extended frame ID number as above

Representation of 0x12345678

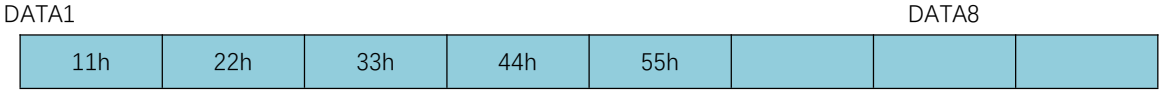
Standard frame ID number as above

Representation of 0x123

Frame Data: 8 bytes in length, the effective length is determined by the value of D3~D0 in the frame information.




The above is a representation of 8 bytes of valid data.




The above is a representation of 5 bytes of valid data.

Example:

The following example is a representation of an extended data frame with frame ID 0x11223344 containing 8 bytes of valid data



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

(11h,22h,33h,44h,55h,66h,77h,88h).

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88h | 11h | 22h | 33h | 44h | 11h | 22h | 33h | 44h | 55h | 66h | 77h | 88h |

The following example is a standard data frame with frame ID 0x789 containing 5 bytes of valid data (12h,34h,56h,78h,90h) representation.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05h | 00h | 00h | 07h | 89h | 12h | 34h | 56h | 78h | 90h | | | |

Example:

1. CAN bus receives data and outputs it to the network:

CAN data:

Frame format: extended frame

Frame type: data frame

ID: 0x12345678

Data: AAh BBh CCh DDh EEh

Outputs it to the network: 85 12 34 56 78 AA BB CC DD EE

0x85 means that the frame format is extended frame, the frame type is data frame, and the length of the data is 5

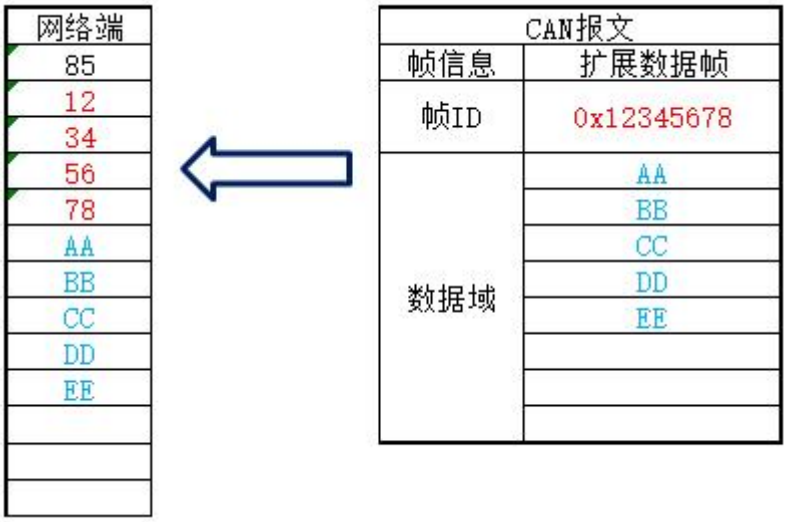
The last four bits indicate that the CAN ID is 12345678, the last 8 bits are the data area, and the effective length is 5 The last four bits indicate that the CAN ID is 12345678, and the effective length is 5. Indicates that the CAN ID is 12345678

The last 8 bits are the data area and the valid length is 5.

As shown in the figure below:



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000




2. The network side sends data to CAN:

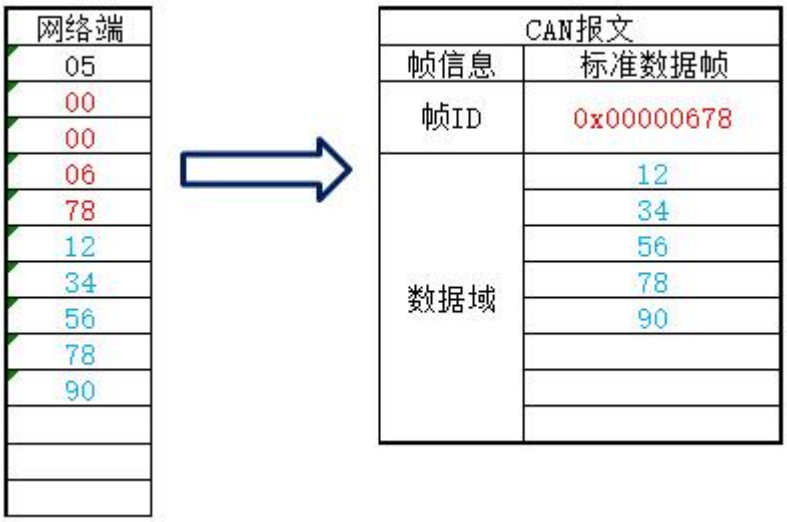
The network side sends: 05 00 00 06 78 12 34 56 78 90

0x05 means the frame format is standard frame, the frame type is data frame, the data length is 5

00 00 06 78 means the ID (hexadecimal) is 0678

12 34 56 78 90 is the data area (hexadecimal), the effective length is 5

As shown in the figure below:






Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

# Revision history

| Versions | Revision Date | Revision Notes | Maintaining people |
|---|---|---|---|
| 1.1 | 2025-05-22 | Initial Version | Lizhibing |

# About us

Technical support: support@cdebyte.com
Documents and RF Setting download link:： www.cdebyte.com
Thank you for using Ebyte products! Please contact us with any questions or suggestions: info@cdebyte.com
---
Phone: +86 028-61399028
Web: www.cdebyte.com
Address: B5 Mould Park, 199# Xiqu Ave, High-tech District, Sichuan, China

Chengdu Ebyte Electronic Technology Co.,Ltd.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000