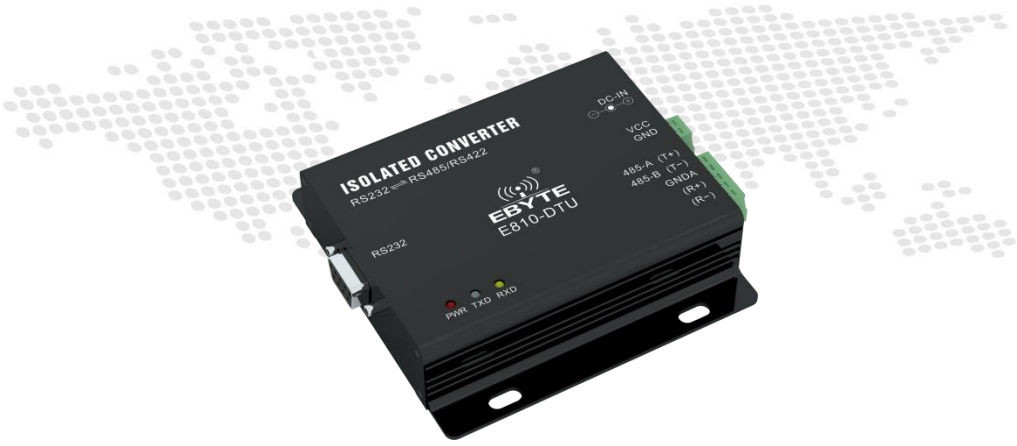
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual

E810-DTU(RS) Isolation Interface Bidirectional Converter



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Chapter 1 Overview

1.1 Introduction



E810-DTU(RS) is a highly cost-effective RS232-RS485/RS422 isolated interface bidirectional converter tool independently developed by Chengdu Yibite Electronic Technology Co., Ltd. This product has the characteristics of small size, simple wiring, and convenient installation. It is a reliable assistant for engineering applications, project debugging and product development.

E810- DTU(RS) The product integrates 1 RS232 interface and 1 multiplexed RS485/RS422 interface, which can realize transparent transmission between RS232 signal and RS485/RS422.

1.2 Main Features

- Support bidirectional conversion between RS232 and RS485/RS422 data;
- Baud rate adaptive;
- No handshake signal is required to achieve transparent transmission;
- The RS232 port provides surge protection and lightning protection of 400W;
- RS485/RS422 port protection, 15KV ESD;
- High-speed optocoupler signal isolation between RS232 and RS485/RS422;
- Power isolation voltage 1500VDC;
- Supports point-to-point and point-to-multipoint communications, supporting up to 32 nodes;
- LED indicates power and signal status;
- 5 V ~ 36 V wide voltage power supply .

1.3 Application Scenarios

- Industrial Automation Control Systems
- Bus fare collection, parking lot fee collection system
- Access control, attendance, and card system
- Autonomous banking system
- Consumer systems, etc.

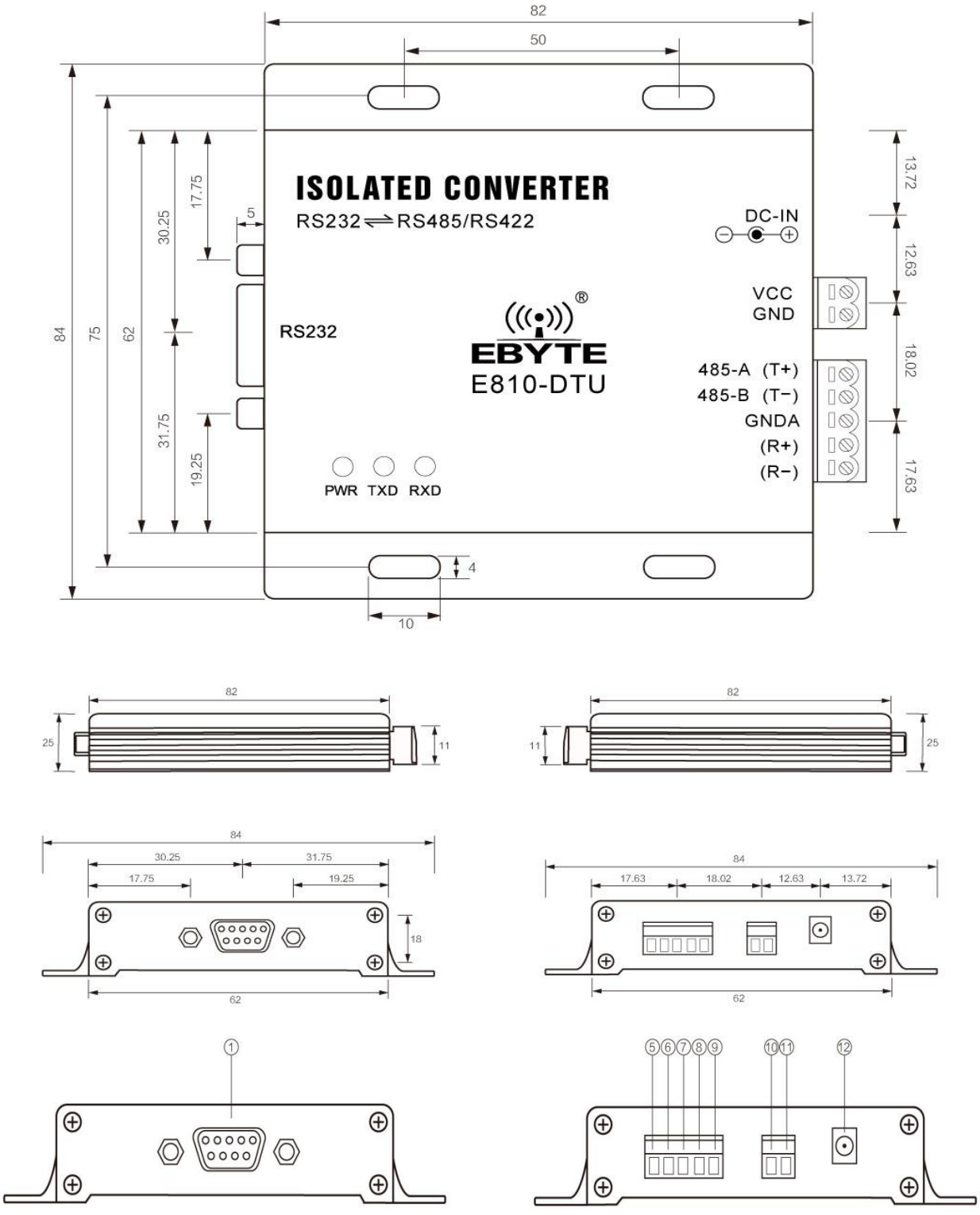
Chapter 2 Product Specifications

Main parameters	performance
Supply voltage	5V~36V , more than 36V may burn out, 12V or 24V power supply is recommended
Working current	24mA@12V
How it works	Asynchronous half-duplex or asynchronous full-duplex
Transmission medium	Twisted pair or shielded cable
Interface Characteristics	The interface is compatible with EIA/TIA RS232C, RS485/RS422
Interface	RS232: DB9 female connector RS485/RS422:1*5*3.81, wire pressing
Transmission distance	1200m (RS485 port); 5m (RS232 port)
Operating temperature	-40 ℃~+85℃, industrial grade
Operating humidity	10%~90%, relative humidity, no condensation
Size	82×84×25mm
Average weight	130±5g

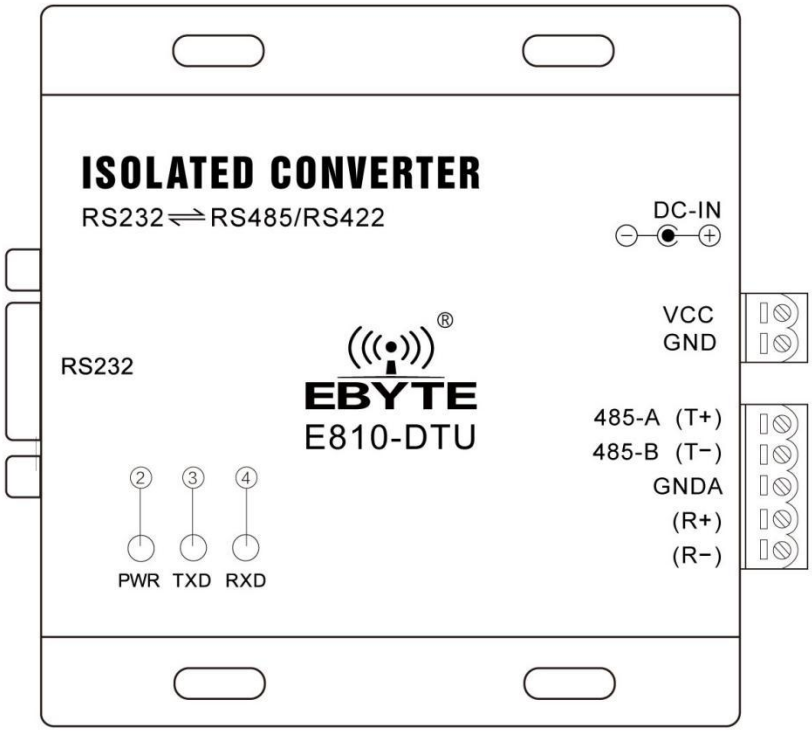
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Chapter 3 Mechanical Dimensions and Identification Definitions



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Serial number	Identification Name	use
1	RS232	DB9 female connector
2	PWR	Power indicator
3	TXD	RS232 serial port sending indicator
4	RxD	RS232 serial port receiving indicator
5	(R-)	Receiving (B-)
6	(R+)	Reception (A+)
7	GNDA	Signal reference ground
8	485-B(T-)	Send (B-)
9	485-A(T+)	Send (A+)
10	GND	Power terminal ground
11	VCC	Power terminal, default 5-36V, recommended 12V/24V , cannot be powered by the power socket at the same time
12	DC-IN	Power socket, default 5-36V, recommended 12V/24V, cannot be powered at the same time as the power terminal

Chapter 4 Hardware Installation and Application

Please read the product manual carefully before installing the E810-DTU (RS) isolated interface bidirectional converter. Connect the communication cable adapted by the product to the RS-232 interface and RS485/RS422 interface respectively , and connect the power adapter to the socket (or to the power wiring terminal). This product uses a universal connector as the input/output interface. It does not require jumper settings to automatically realize RS-485 or RS-422 communication. Twisted pair or shielded wire can be used, and it is very convenient to connect and disassemble. Point-to-point, point-to-multipoint, and half-duplex communication connects two wires (T + / T-) , and point-to-point, point-to-multipoint, and full-duplex communication connects four wires (T+ / T- / R +/R-) .

E810-DTU(RS) isolated interface bidirectional converter supports the following four communication modes:

1、Point to point/two-line half-duplex
2、Point-to-multipoint/two-line half-duplex
3、Point-to-point/four-wire full-duplex
4、Point-to-multipoint/four-wire full-duplex

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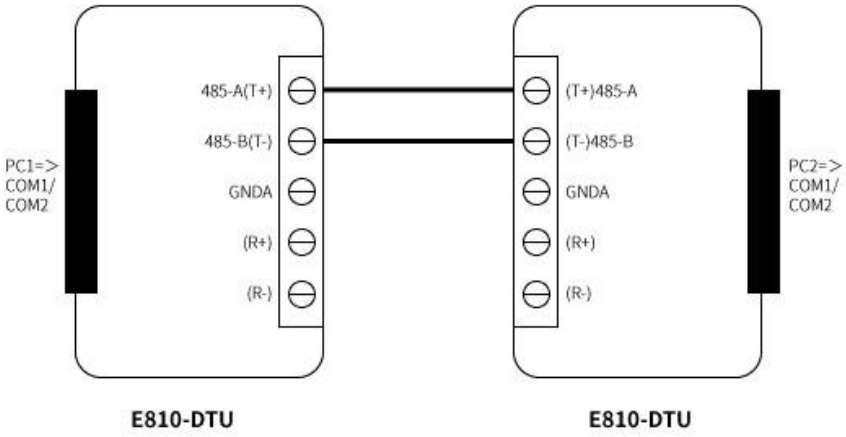
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When the converter is used as full-duplex or half-duplex wiring, in order to prevent signal reflection and interference, a matching resistor (parameter is 120 ohm 1/4W) needs to be connected to the terminal of the line.

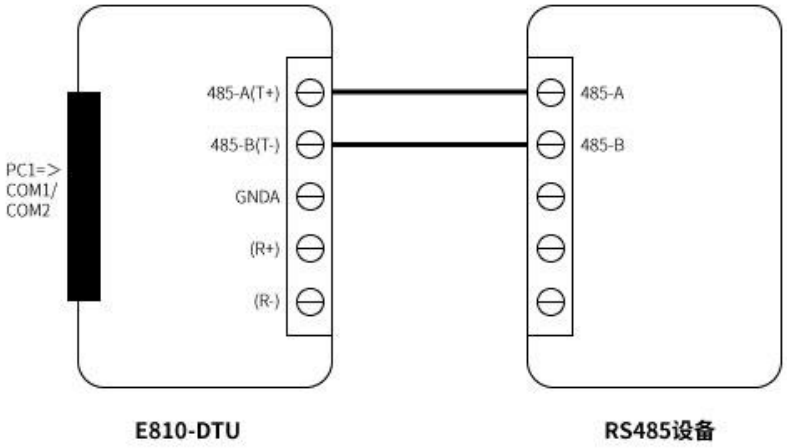
Chapter 5 Communication Connection Diagram

5.1 RS232 to RS485 conversion

A. Half-duplex communication connection between E810-DTU(RS) isolated interface bidirectional converters



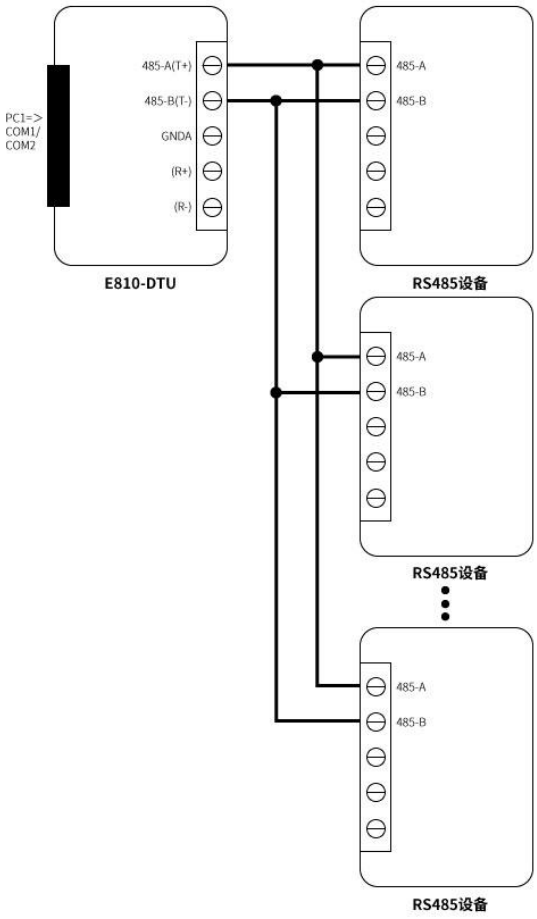
B. E810-DTU(RS) isolated interface bidirectional converter point-to-point/two-wire half-duplex



C. E810-DTU(RS) isolated interface bidirectional converter point to multipoint/two-wire half-duplex

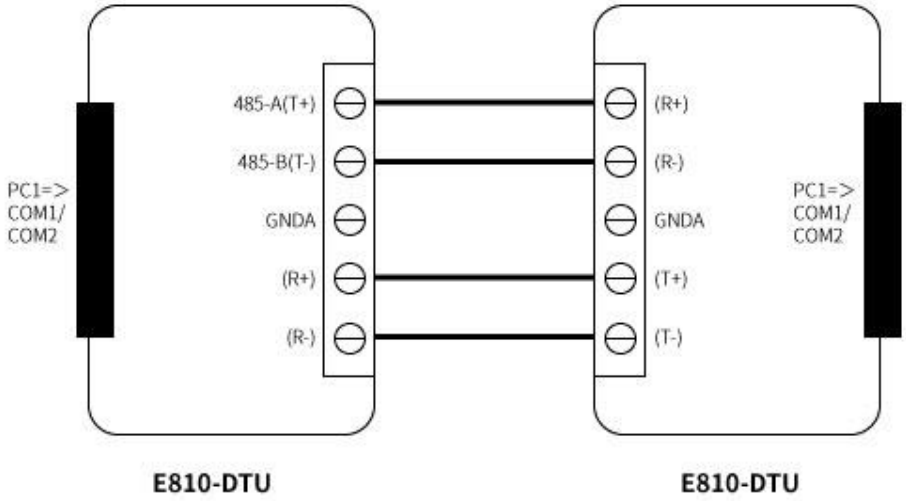
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5.2 RS232 to RS422 conversion

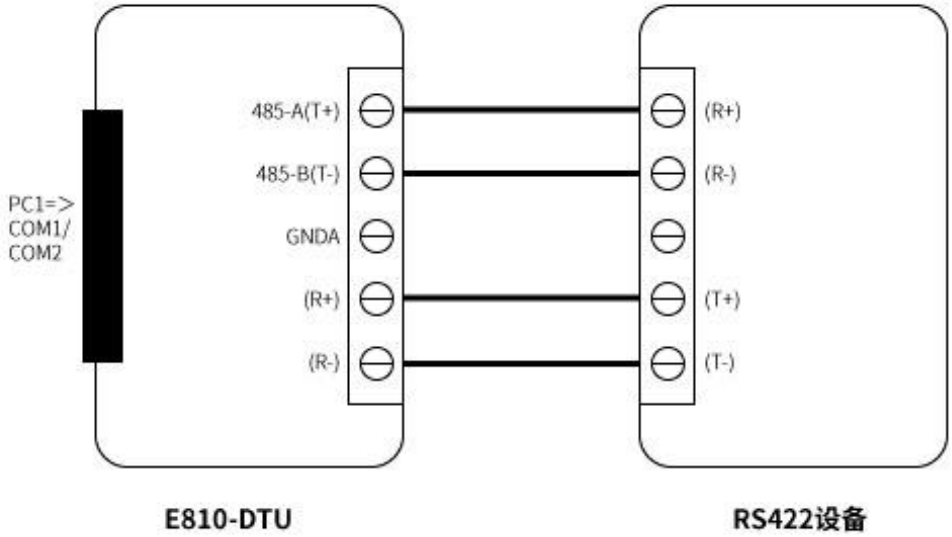
A. Full-duplex communication connection between E810-DTU(RS) isolated interface bidirectional converters



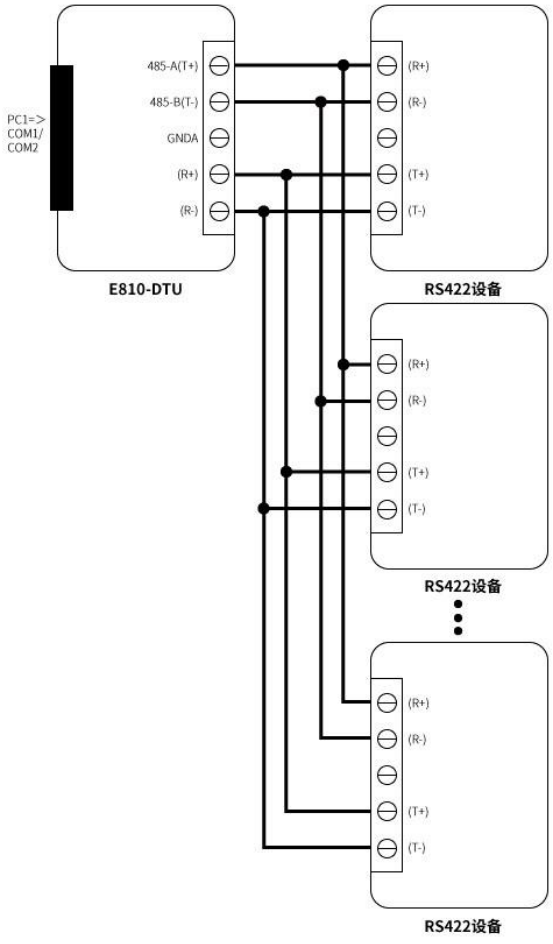
B. E810-DTU(RS) isolated interface bidirectional converter point-to-point/four-wire full-duplex

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C. E810-DTU(RS) isolated interface bidirectional converter point to multipoint/four-wire full-duplex



Chapter 6 Faults and Troubleshooting

6.1 Data communication failure

A. Check whether the RS232 interface wiring is correct
B. Check whether the RS485/RS422 wiring interface is correct
C. Check whether the wiring terminals are well connected

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6.2 Data Loss or Errors

A. Check whether the data rates at both ends of the data communication equipment are consistent
B. Check whether the data formats at both ends of the data communication equipment are consistent

Revision History

Version	Revision Date	Revision Notes	Maintainer
2.1	2025-05-23	Revisions	huaa

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