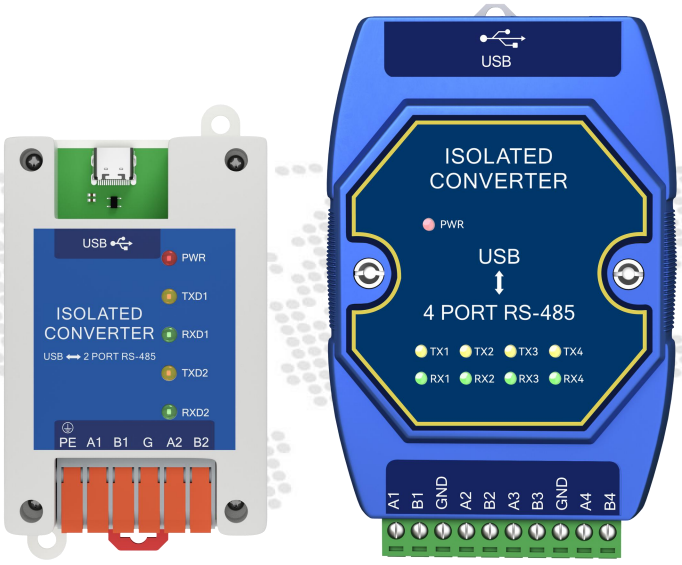
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual



USB to 2/4-way RS485

E810-U21/U41 series

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1 Product Introduction

The E810-U21/41 series is an industrial-grade USB to 2-way/ 4-way RS485 conversion module. With one external USB interface, you can convert 2/4 independent RS485 interfaces without affecting each other. It is suitable for scenarios where the computer is connected to multiple RS 485 networks at the same time. Built-in RS485 automatic transceiver switching circuit, independent pin control switching, makes RS485 communication more reliable, and can connect more devices at the same time.

E810-U21/41 is a universal USB-RS-485 interface converter that can convert single-ended USB signals into RS-485 signals without external power supply. Each interface provides surge protection.

E810-U21/41 interface converter can provide reliable connection for point-to-point and point-to-multipoint communication. Each point-to-multipoint converter can allow the connection of 128 RS-485 interface devices. The device is equipped with power indicator and data flow indicator for observing the device status.

Each RS485 interface is equipped with a 600W TVS to effectively prevent surges and lightning strikes , and the self-recovery fuse effectively ensures that the AB communication line is quickly and automatically disconnected when there is a large current to avoid burning the equipment. The USB interface has ±30KV ESD anti-static protection to prevent static electricity from damaging components during plugging and unplugging.

Features

- The USB interface uses Type-c interface, which is convenient, easy to use and highly reliable;
- Support two-wire RS-485 half-duplex communication;
- When connecting multiple devices or communicating over long distances, it is recommended to connect a 120Ω matching resistor (1/4W) in parallel.
- 600W TVS surge and lightning protection ;
- A B communication line high current disconnection self-recovery protection ;
- Power short circuit protection ;
- Baud rate supports 1200bps- 12 Mbps
- Fully automatic sending and receiving switching, automatic hardware flow control
- 4-way RS485 sending and receiving communication indicator lights
- Support Windows system

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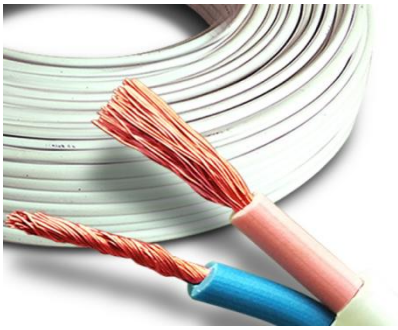
2 Quick Start

If you encounter any problems during use, please click the official website link:

https://www.ebyte.com/product.html

2.1 Preparation

the converter (hereinafter referred to as the "device"), you need to prepare a computer, type-c adapter cable , connecting cable and other related auxiliary materials. The operation is demonstrated using E810-U21, as follows:

	
E810-U21	computer
	
Several cables	Type-c data cable

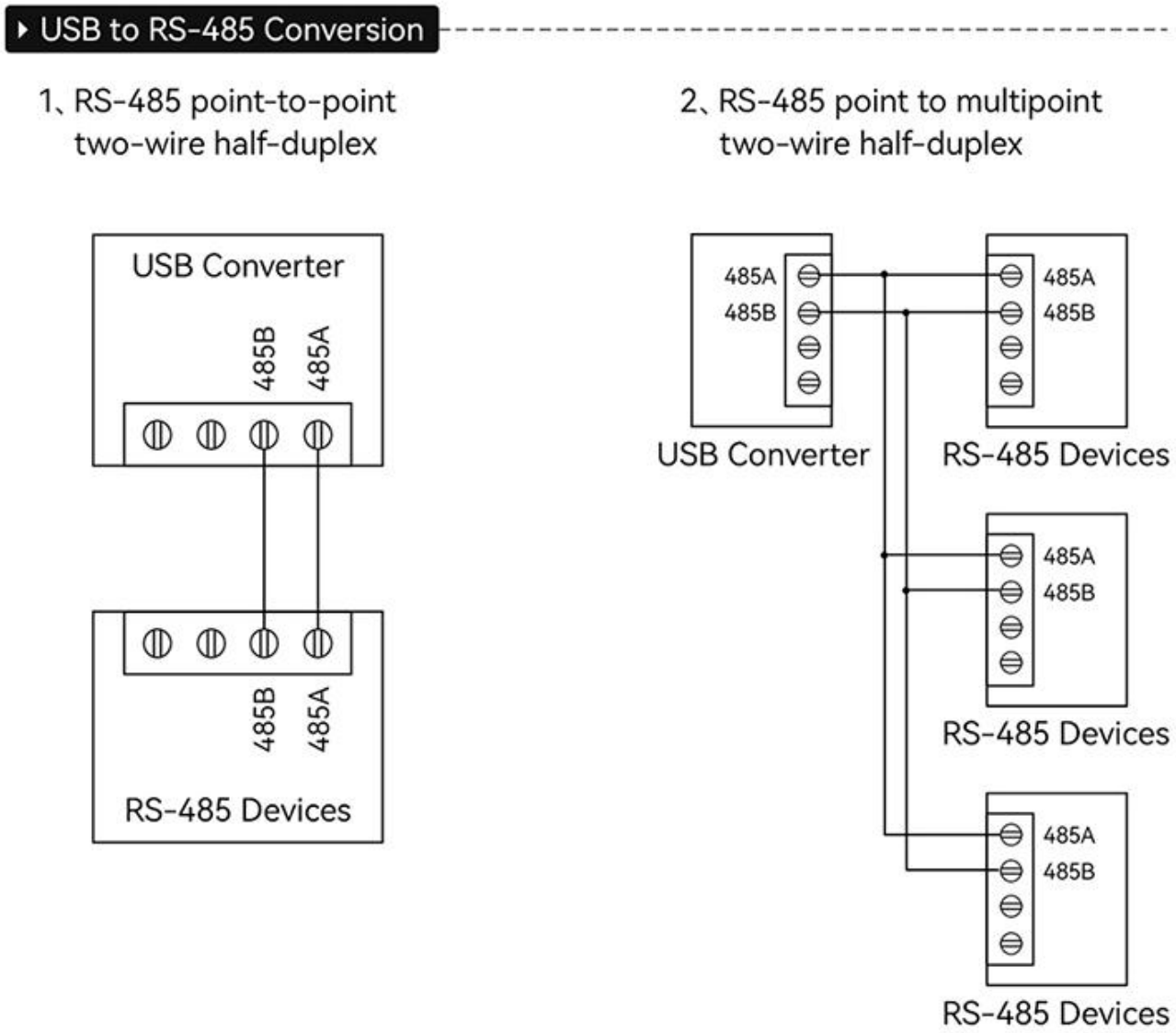
[Note] This case only shows how to verify whether the device is good or bad. For specific use, please connect the AB line to the corresponding device.

[Note] The usage of other models is the same as E810-U21, only the serial port chip model and communication interface are different.

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2.2 Equipment wiring



2.3 Driver Installation

If you need to install the driver, please go to our official website to download the corresponding driver for installation.

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3 Product Series

3.1 Product Specifications

Product Model	USB interface	USB interface chip	RS485 channel	RS485 rate (bps)	RS485 Terminal Block	Product size (mm)	Product weight (g)	Communication Isolation
E810-U21	Type-C	FT2232HL	2	300~12M	Spring terminals	100×54×32	70±5	√
E810-U21S	Type-C	FT2232HL	2	300~12M	Spring terminals		65±5	
E810-U21C	Type-C	CH342F	2	50~3M	Spring terminals		65±5	√
E810-U21CS	Type-C	CH342F	2	50~3M	Spring terminals		65±5	
E810-U41	Type-C	FT4232HL	4	300~12M	Phoenix terminal	120×72×34	115±5	√
E810-U41S	Type-C	FT4232HL	4	300~12M	Phoenix terminal		115±5	
E810-U41C	Type-C	CH344Q	4	1200~6M	Phoenix terminal		115±5	√
E810-U41CS	Type-C	CH344Q	4	1200~6M	Phoenix terminal		115±5	

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3.2 Technical Parameters

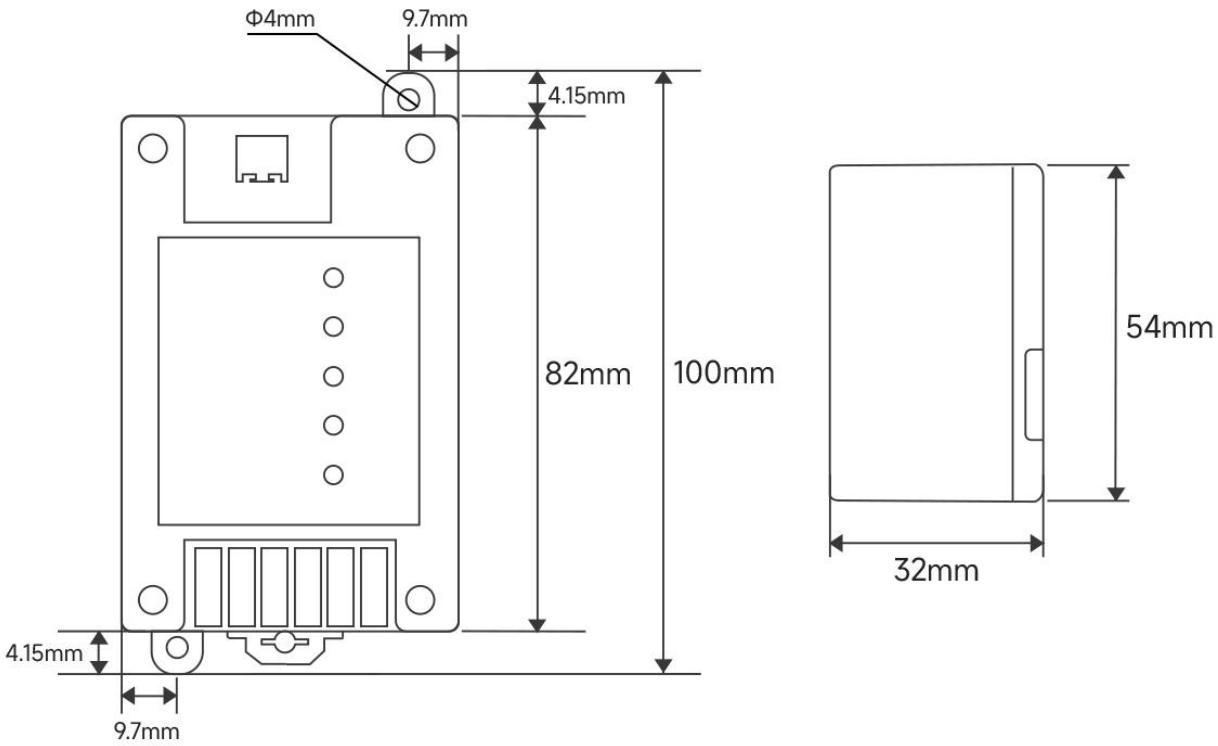
project	illustrate
Operating voltage	5V USB interface power supply
interface	USB Type-c interface communication, version 2.0
	RS485 2-way spring terminal; 4-way Phoenix plug-in terminal
Isolation and protection	1500Vrms power isolation (only supported by isolated version) 3750Vrms signal isolation (only supported by the isolated version) 600W TVS electrostatic surge protection PTC short circuit protection
Protection level	Industrial EMC Level 3 Electrostatic contact 4KV, air discharge 8KV Pulse group differential mode 1KV, common mode 2KV
Working temperature and humidity	-40 ～ +85℃, 5% ～ 95%RH (no condensation)
Storage temperature and humidity	-40 ～ +105℃, 5% ～ 95%RH (no condensation)

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3.3 Mechanical Dimensions

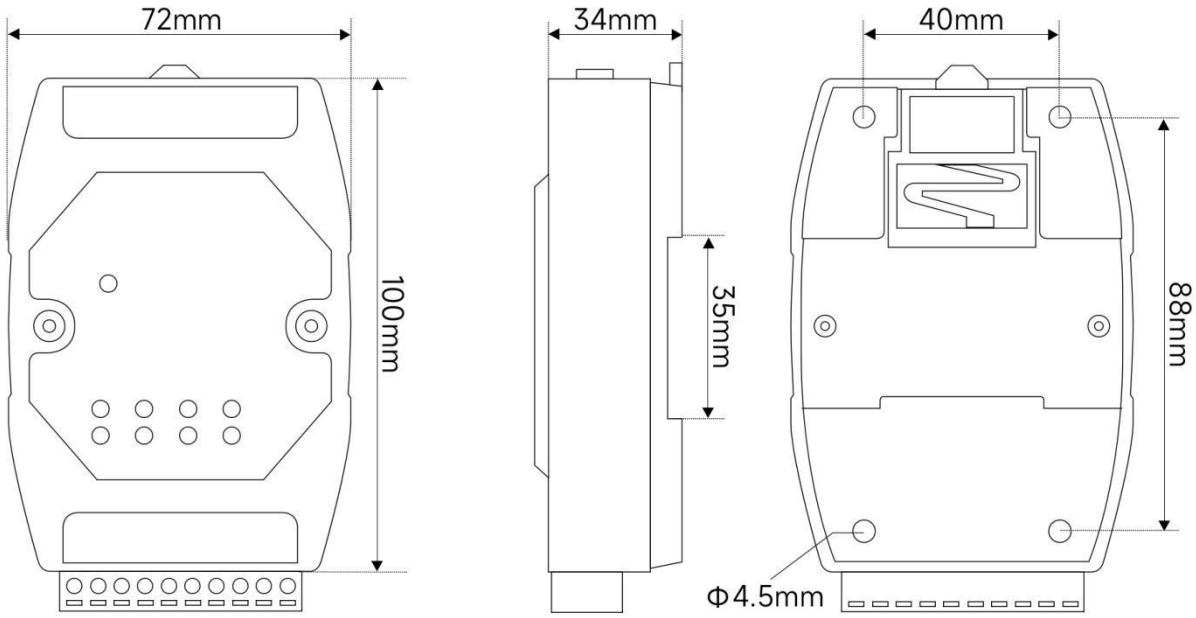
3.3.1 E810-U21 Series



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3.3.2 E810-U41 Series

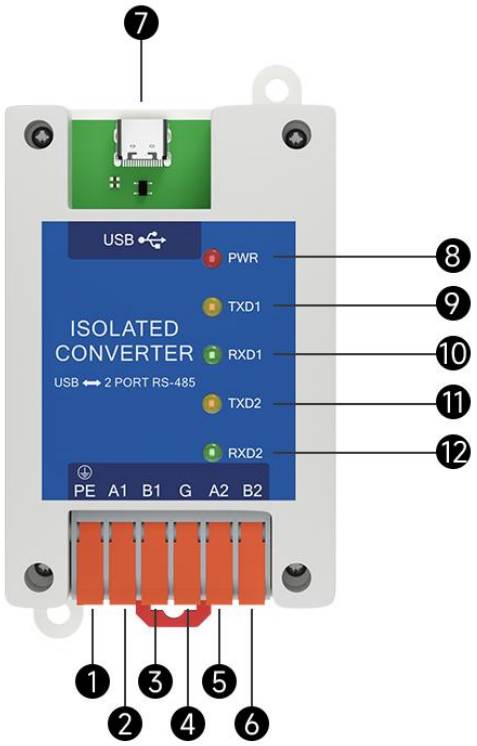


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3.4 Pin Definition

3.4.1 E810-U21 Series



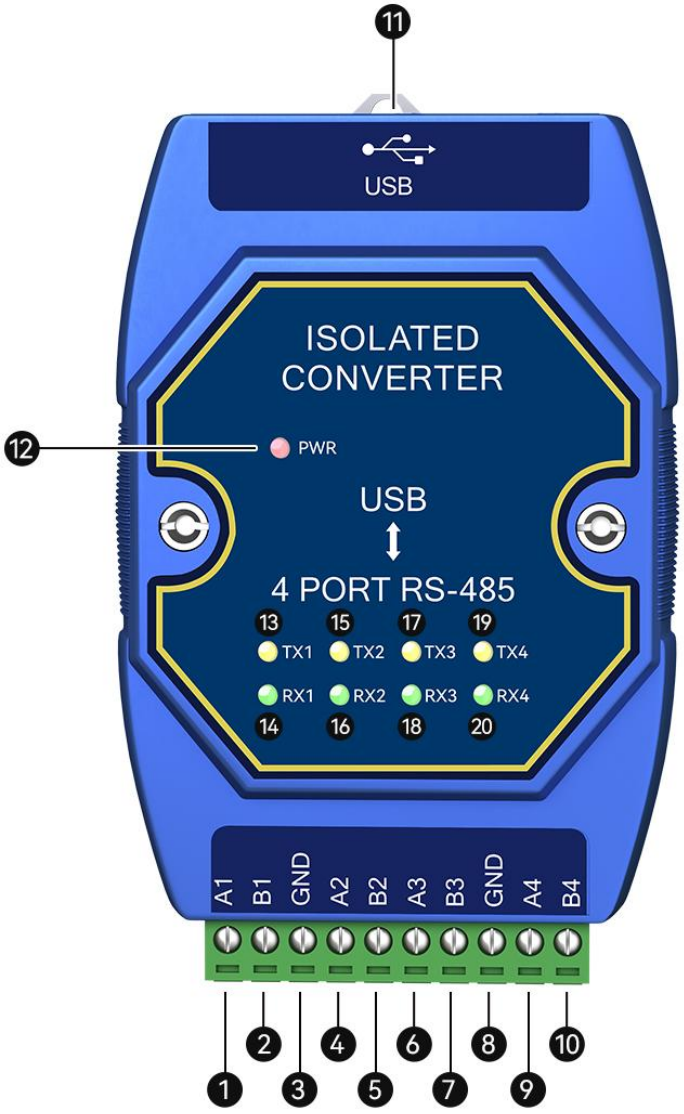
Serial number	name	Function	illustrate
1	PE	Earth terminal	5.08mm spring terminal, connected to the ground
2	A1	RS485-1 A port	5.08mm spring terminal, connected to the A interface of the communication partner
3	B1	RS485-1 B port	5.08mm spring terminal, connected to the B interface of the communication partner
4	G	Digital signal ground interface	5.08mm spring terminal, connected to the GND interface of the communication partner
5	A2	RS485-2 A port	5.08mm spring terminal, connected to the A interface of the communication partner
6	B2	RS485-2 B port	5.08mm spring terminal, connected to the B interface of the communication partner
7	USB	USB interface	Type-c interface, USB2.0
8	LED-PWR	Power indicator	Power on: solid red Power off: Light off

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9	LED-TXD1	Channel 1 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
10	LED-RXD1	Channel 1 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off
11	LED-TXD2	Channel 2 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
12	LED-RXD2	Channel 2 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off

3.4.2 E810-U41 Series



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Serial number	name	Function	illustrate
1	A1	RS485-1 A port	5.08mm Phoenix head terminal, connected to the communication partner A interface
2	B1	RS485-1 B port	5.08mm Phoenix head terminal, connected to the B interface of the communication partner
3	GND	Digital signal ground interface	5.08mm Phoenix head terminal, connected to the GND interface of the communication partner
4	A2	RS485-2 A port	5.08mm Phoenix head terminal, connected to the communication partner A interface
5	B2	RS485-2 B port	5.08mm Phoenix head terminal, connected to the B interface of the communication partner
6	A3	RS485-3 A port	5.08mm Phoenix head terminal, connected to the communication partner A interface
7	B3	RS485-3 B port	5.08mm Phoenix head terminal, connected to the B interface of the communication partner
8	GND	Digital signal ground interface	5.08mm Phoenix head terminal, connected to the GND interface of the communication partner
9	A4	RS485-4A port	5.08mm Phoenix head terminal, connected to the communication partner A interface
10	B4	RS485-4 B port	5.08mm Phoenix head terminal, connected to the B interface of the communication partner
11	USB	USB interface	Type-c interface, USB2.0
12	LED-PWR	Power indicator	Power on: solid red Power off: Light off
13	LED-TX1	Channel 1 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
14	LED-RXD1	Channel 1 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off
15	LED-TX2	Channel 2 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
16	LED-RXD2	Channel 2 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off
17	LED-TX3	Channel 3 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
18	LED-RXD3	Channel 3 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off
19	LED-TX4	Channel 4 data sending indicator	Data interaction: yellow light flashing No data interaction: Off
20	LED-RXD4	Channel 4 data receiving indicator	Data interaction: yellow light flashing No data interaction: Off

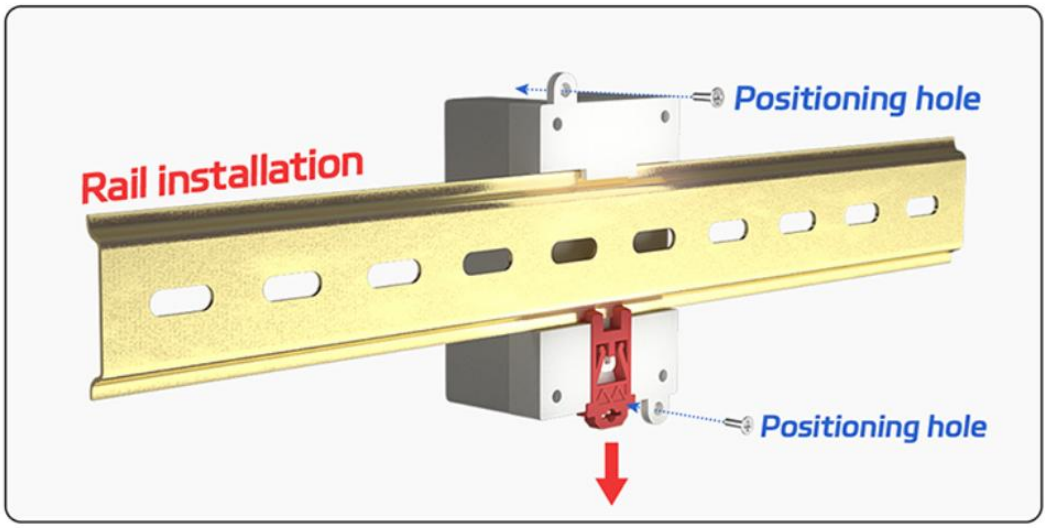
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3.5 Installation

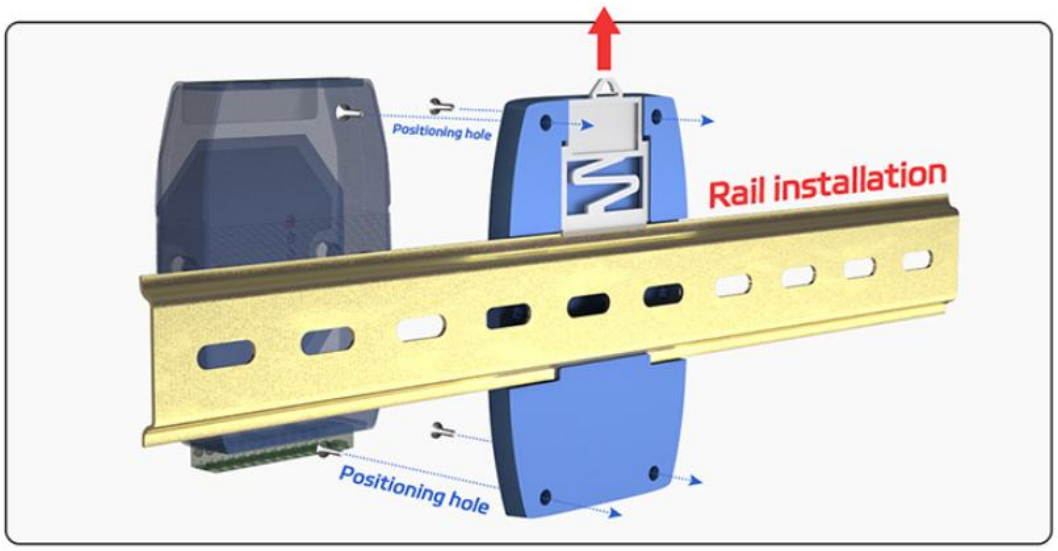
3.5.1 E810-U21 Series

is installed by positioning holes or guide rails.



3.5.2 E810-U41 Series

is installed using guide rails or positioning holes .



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4 Frequently asked questions

4.1.1 The device cannot connect to the PLC or computer

Possible causes:

1. The computer has multiple COM ports and the selected port is incorrect.
2. The device address is incorrect, or there are devices with duplicate addresses (factory default is all 1).
3. Baud rate, parity, data bits, stop bit errors.
4. The host polling interval and waiting response time are too short and need to be set above 200ms.
5. The 485 bus is disconnected, or the A and B lines are connected reversely.
6. If there are too many devices or the wiring is too long, power supply should be provided nearby, a 485 enhancer should be added, and a 120Ω terminal resistor should be added.
7. The USB to 485 driver is not installed or is damaged.
8. Equipment damage

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