SC1M5-4M5
RS485HUB
User Manual

1-channel RS485 to 4-channel RS485

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1. Overview

The SC1M5-4M5 is an industrial-grade isolated 4-port RS485 hub that can expand from one RS485 master port to four RS485 slave ports. It can effectively realize the relay, expansion and isolation of RS485 networks.

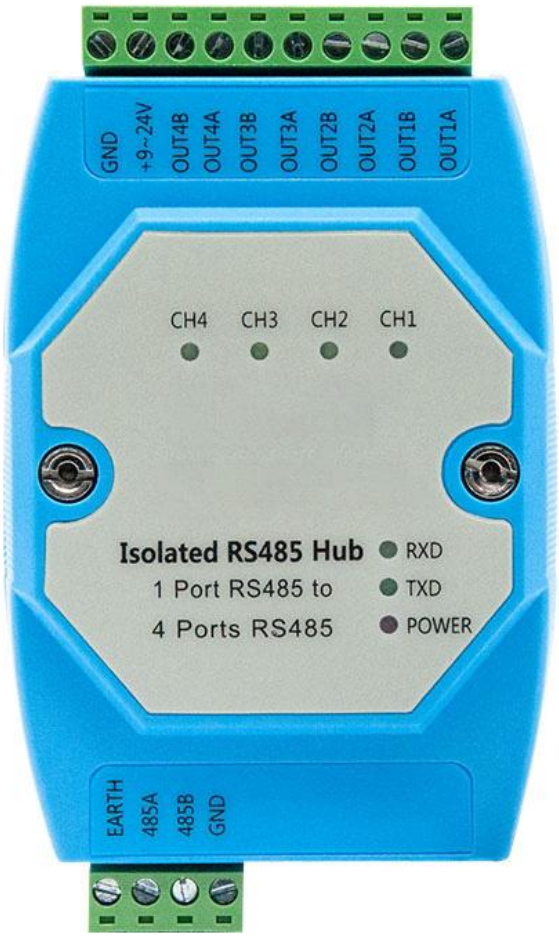


Figure 1SC1M5-4M5 Appearance

Generally, RS485 wiring requires a daisy-chain connection, avoiding a star connection centered on the master station. However, in some cases, a star connection is necessary for convenience. In such cases, using an RS485 hub can effectively isolate interference between multiple RS485 connections.

The SC1M5-4M5 active isolated RS485 hub is specifically designed for harsh industrial environments, making it particularly suitable for applications requiring high reliability and security. Its opto-isolation function effectively isolates RS485 master and slave devices from each other, preventing damage caused by ground potential differences, static electricity, lightning strikes, and surges. It also effectively prevents ground loops caused by ground potential differences between the master and slave devices, thus avoiding damage to the RS485 devices.

The SC1M5-4M5 has three main application modes:

1. Isolation: Effectively isolate the master and slave ends of the RS485 network .
2. Relay : can effectively extend the communication distance of RS485 networks.
3. Expansion: It can expand from 1 RS485 to 4 RS485, multiplying the number of RS485 devices in the network.

2. Features

1. The RS485 master and slave ports have 2500V voltage isolation protection.
2. The RS485 master and slave ports support up to 32 slave stations.
3. The back is equipped with a guide rail mounting slot, which is suitable for guide rail installation.
4. 9-24V wide voltage input.
5. RS485 reverse connection indicator. When lines A and B are reversed, indicator lights CH1 to CH4 will remain on.

3. Technical parameters

physical interface	RS485: Terminal block
working methods	RS485: Two wires (A, B);
Communication rate	300~921600 bs (adaptive)
Support points	Each RS485 port supports a maximum of 32 nodes .
Communication distance	Maximum range: 1200 meters (reduced by environmental interference) ; the higher the communication speed, the shorter the distance.
Isolation voltage	RS485 isolation voltage: 2500V
Electrostatic protection	RS485: 12KV
working methods	Half-duplex transparent transmission
Power supply voltage	9 ~ 24V
Operating temperature	-45 ℃ ~+85 ℃
Ambient humidity	<95%RH
transmission medium	Plain parallel wire or twisted pair
size	Length × Width × Height = 12.2cm × 7.2cm × 3.4cm

4. Hardware Description

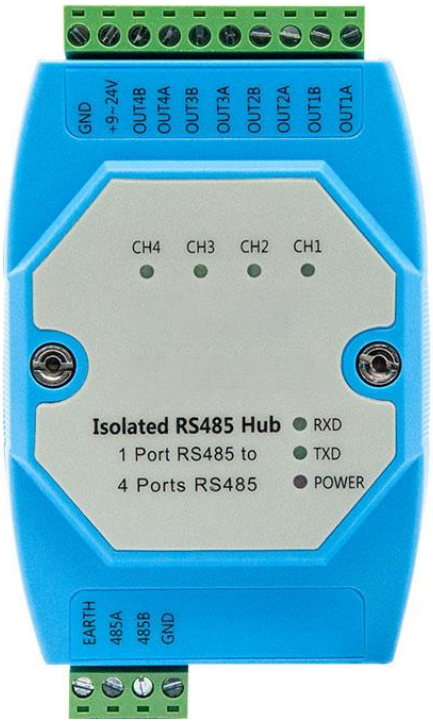


Figure 2 SC1M5-4M5 Interface Diagram

3 shows the front view of the SC1M5-4M5 , and the interface descriptions are as follows:

name	illustrate
EARTH	The outer casing is grounded for RS485 lightning protection and high current diversion; it can be left unconnected.
485A, 485B	RS485 main port
OUT1A, OUT1B	RS485 port 1
OUT2A, OUT2B	RS485 port 2
OUT3A, OUT3B	RS485 port 3
OUT4A, OUT4B	RS485 port 4
GND, +9~24V	Power terminal input

The panel indicator lights are explained as follows:

POWER	Power indicator light
TXD	Main RS485 data transmission indicator light
RXD	Main RS485 receiver indicator light
CH1	RS485 slave input data indication (channel 1)
CH2	Second RS485 slave input data indication
CH3	3rd RS485 slave input data indication
CH4	4th RS485 slave input data indication

5. How to use

1. Extended usage: When the master RS485 device needs to connect four RS485 slave devices in a star topology, connect the master device to the SC1M5-4M5 master port and the slave devices to the SC1M5-4M5 slave port. This can prevent interference between RS485 devices and provide effective isolation.
2. Isolation: Connect one end of the RS485 to the RS485 master port and the other end to any RS485 slave port. This effectively isolates the RS485 line, providing protection against lightning strikes and interference. It also effectively protects the other RS485 device from damage caused by high voltage or strong current.
3. Repeater : When the RS485 line travels over distances exceeding 1200 meters, signal attenuation and interference increase. Using the SC1M5-4M5 can extend the communication distance.