SC1M25-4S5
RS485 HUB
User Manual

1-channel RS232/RS485 to 4-channel RS485

TABLE OF CONTENTS

1. OVERVIEW 3
2. FEATURE 4
3. TECHNICAL PARAMETERS 4
4. HARDWARE DESCRIPTION 5
5. USAGE METHOD 6

1. Overview

The SC1M25-4S5 is an industrial-grade isolated 4-port RS485 hub that can expand from one RS485/232 master port to four RS485 slave ports. It effectively enables RS485 network relay, expansion, and isolation. The SC1M25-4S5 can also function as an active isolated RS232 to RS485 converter.

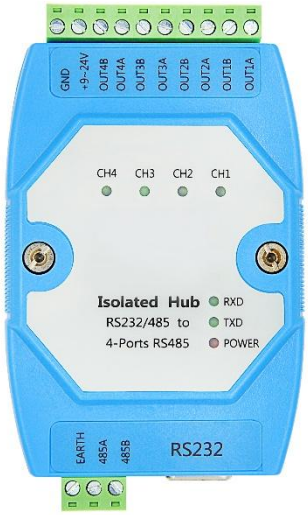


Figure 1SC1M25-4S5 Appearance

The SC1M25-4S5's main port provides both isolated RS485 and RS232 interfaces, and can be expanded to provide four isolated RS485 interfaces.

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 SC1M25-4S5 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 equipment.

The SC1M25-4S5 has four main application modes:

1. Isolation: Effectively isolates the master and slave ends of the RS485 network; simultaneously isolates 4 slave stations.
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.
4. Conversion: It can also convert 1 RS-232 to 4 RS485.

2. Features

1. The RS485 master and slave ports have 2500V voltage isolation protection.
2. The RS485 master and slave ports support up to 256 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

Interface Standard	Compliant with EIA/TIA RS-232 and RS485 standards
physical interface	RS232: DB9 (hole) , RS485: Terminal block
working methods	RS485: Two wires (A, B); RS232: Three wires (TXD, RXD, GND)
Communication rate	0~200Kbps (adaptive)
Support points	Each RS485 port supports a maximum of 256 nodes.
Communication distance	1200 meters (at 9600bps) ; 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	DC 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

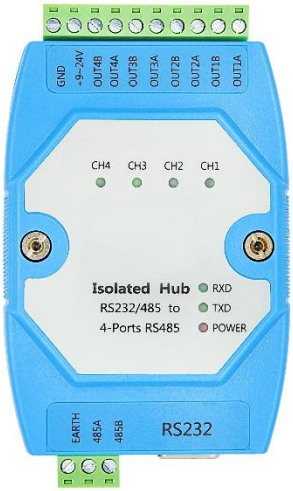


Figure 2SC1M25-4S5 Interface Diagram

3 shows the front view of the SC1M25-4S5 , 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
RS232	Choose one of the RS232 or RS485 master ports to use.
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	Master RS232/485 sends data to slave station
RXD	The master RS232/485 receives data from the slave station.
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 SC1M25-4S5 master port and the slave devices to the SC1M25-4S5 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 a distance exceeding 1200 meters, signal attenuation and interference increase. Using the SC1M25-4S5 can extend the communication distance.
4. Conversion: It can convert RS232 to RS485, and it is an active converter with strong compatibility; it also has isolation characteristics to prevent the monitoring computer from being damaged by the strong voltage of RS485.