SPC8□□□-NA RS485 to RS485 Repeater Module

User Manual

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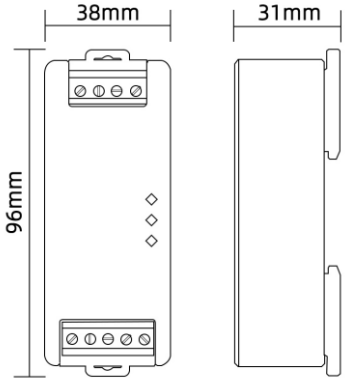
I. Precautions

- Do not operate this product beyond its design limits under any circumstances.
- The power supply for this product is 24V DC. Strictly prohibit the use of 220V AC power.
- This product should be installed in a safe location. The shell's maximum withstand temperature is +85°C.
- When used in environments with strong magnetic interference, shieldedcable is recommended for signal lines.
- Strictly prohibit unauthorized disassembly, modification, or repair of this product.
- Pay attention to the wiring method of this product to ensure correct Wiring and avoid damaging the product.
- Read this manual carefully before installation and use. If you have any questions, please contact our technical support personnel or refer to relevant technical guidance videos.
- Our company is not responsible for damage to components other than this product during use.
- Please download the latest electronic version of the documentation. The content of this manual is for reference only. We continuously improve the user experience, and technical parameters are subject to change without notice.



II. Product Dimensions

- Product dimensions: **96mm (L) X 38mm (W) X 31mm (H)**
- Industrial-grade flame-retardant plastic shell, standard DIN35 rail mounting.

III. Operating Environment

- Do not expose this product to excessively high or low temperatures.
- The surrounding environment must be free from strong vibration, impact, and electromagnetic interference such as large currents and sparks.
- The operating environment must not contain harmful substances that cause severe corrosion to metal or plastic components. Do not use or store the product in harsh environments, otherwise it will affect the electrical performance of the product.
- Operating Temperature: -40℃～+80℃ Relative Humidity: 10% ～ 90%RH (non-condensing)

IV. After-Sales Service

We are committed to providing you with comprehensive after-sales service and warranty policy. The product warranty period is three years. During the warranty period, if the product fails due to non-human factors, we will provide free repair or replacement service. Damage caused by violation of operating regulations and requirements will require payment of parts cost and repair fee. After the warranty period expires, we continue to provide technical support and assistance. During this period, replacement parts are provided at cost price.

V. Application Fields

Automation Equipment

Medical Electronics

Remote Monitoring

Process Control

· Product Introduction

The SPC series communication signal conversion modules are primarily designed for signal interference processing and conversion in industrial settings. Their core functions include ground loop isolation, electromagnetic interference elimination, enhanced circuit load capacity, and support for device signal sharing and monitoring. They are widely used in measurement and control systems and various automatic control systems across industries such as industrial automation, medical electronics, automotive manufacturing, power engineering, petrochemicals, aerospace, railways, and PLC applications.

The SPC8010-NA functions as an RS485 to RS485 signal repeater. It is compliant with the EIA/TIA RS485 standard and amplifies and isolates RS485 signals to extend communication distance. Utilizing high-speed opto-isolation protection, it is designed to solve problems of RS485 signal repeater transmission and isolation in complex electromagnetic environments. The module incorporates industrial-grade chips with superior anti-interference capabilities and features intelligent automatic circuit direction sensing. This ensures stable signals, secure and reliable data communication, and eliminates the delay issues associated with RS485 transceiver switching.

This product requires a separate power supply and is mounted on a standard 35mm DIN rail, offering simple on-site installation and flexible use, suitable for a variety of field applications.

· Technical Parameters

Basic Parameters	
Power Supply	DC12～36V(DC24V recommended)
Current Consumption	≤50mA @DC24V
Power Protection	Reverse Voltage <-40V
Isolation	DC1500V (Master, Slave)
Insulation Resistance	≥100MΩ (Master, Slave)
Electromagnetic Compatibility	Complies with GB/T182681 (IEC 6132-1)
Suitable Application	RS-485 bus systems requiring extended communication distance
Serial Port Parameters	
Input Signal	1 x RS485
Output Signal	1 x RS485
Operating Mode	RS485 asynchronous half-duplex differential
Communication Protocol	Independent of software protocol restrictions
Cascading Capacity	Supports up to 128 cascaded RS485 devices
Load Capacity	Single RS-485 interface supports up to 32 nodes Distance between nodes ≤ 10 m
Baud Rate	300 – 230,400 bps (Auto-adaptive)
Transmission Delay	< 10uS
Protection Level	600W TVS
Communication distance	1200m (typical)
Environmental Conditions	
Operating Temperature	-40℃～+80℃
Storage Temperature	-40℃～+85℃
Relative Humidity	10%～90%RH (non-condensing)
Atmospheric Pressure	80kPa～106kPa

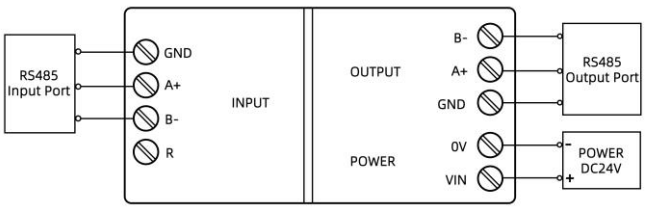
· Terminal Description

Terminal Mark	Function Description
VIN	Power supply positive terminal, DC12-36V input
OV	Power supply negative terminal
GND	Slave Communication Signal Ground
A+	Slave RS485 Communication Signal Positive Terminal
B-	Slave RS485 Communication Signal Negative Terminal
GND	Input Terminal Communication Signal Ground
A+	Input Terminal RS-485 Communication Signal Positive
B–	Input Terminal RS-485 Communication Signal Negative
R	Internal 120Ω Termination Resistor (must be shorted to B- when required)

· Indicator Description

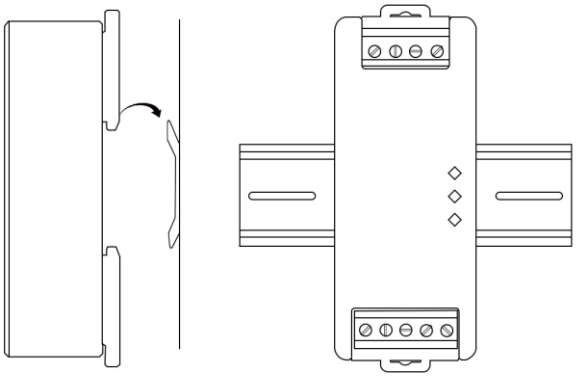
Indicator Mark	Function Description
PWR	Power Indicator
TXD	Flashes when input terminal transmits data
RXD	Flashes when output terminal receives data

· Wiring and indication

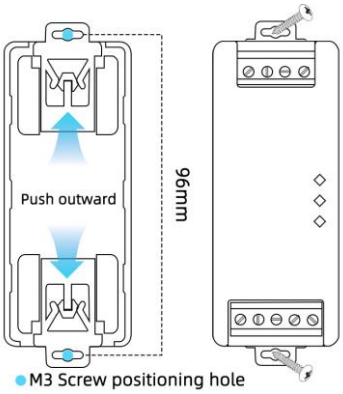


· Installation Instructions

This module uses the DIN35mm rail mounting method. The rail should comply with the installation dimension specifications for the TH35-7.5 type rail according to the national standard GB/T19334-2003. Users can easily install or remove the module on the rail. Installation must be stable and secure. This module also supports screw mounting without a rail.



– Installation method of guide rail –



– Screw installation method –

· Product Naming Rules

Take the SPC8010-NA11L as an example: Single-Channel RS485 to RS485 repeater isolation module, RS485 communication mode, N form factor, module powered by DC12-36V

SPC	8	01	0	N	A	1	1	L
Product Type	Comm Type	Conversion Channel	Serial Number	Product Form Factor	Comm Speed	Isolation Level	Output Type	Power Supply
Comm signal conversion module	1 USB 2 ETH 3 Bluetooth 4 WIFI 5 CAN 6 Profient 7 LoRa 8 Serial Comm 9 Other Comm	1-32	0-9	N Form Factor K Form Factor M Form Factor W Form Factor F Form Factor R Form Factor Y Form Factor Q Form Factor S Form Factor	A Speed 200Kbps B High Speed 1Mbps C Ethernet 10Mbps D Ethernet 100Mbps E Other Speeds	0 No Isolation 1 1500V 2 3000V 9 Other Classes	0 RS232 1 RS485 2 Ethernet 3 Bluetooth 4 WiFi 5 CAN 6 Profient 7 LoRa 9 Mixed Output	L DC12-36V H AC220V C +12V D +24V U USB Power Supply

· Module Wiring Precautions

For the RS-485 signal output port of the repeater:

- The bus supports a maximum of 128 nodes (RS-485 devices).
- The branch length between any two nodes shall not exceed 10 meters.
- The total bus length shall not exceed 1200 meters.
- All nodes must be connected in a daisy-chain topology (hand-in-hand connection).
- Star-topology connections and branch splittings are strictly prohibited.