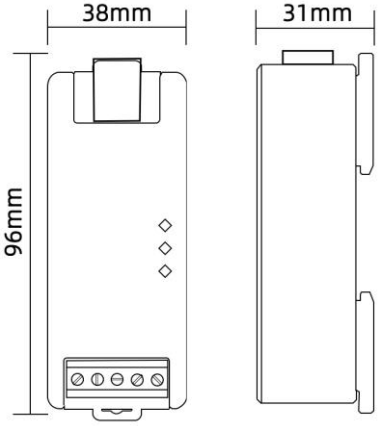
SPC1022-NB Isolated USB to Serial Communication Module

User Manual

I. Precautions

- Under no circumstances should this product be operated beyond its design limit state;
- This product is powered by USB, DC5V;
- This product should be installed in a safe place, and the maximum temperature tolerance of the shell is+85 °C;
- When used in a strong magnetic interference environment, it is recommended to use shielded cables for signal lines;
- It is strictly prohibited to disassemble, modify or repair this product without authorization;
- Pay attention to the wiring method of this product, ensure correct wiring, and avoid damaging the product;
- Before installation and use, please carefully read this manual. If you have any questions, please contact our technical support personnel or refer to relevant technical guidance videos;
- During use, our company is not responsible for any damage to components other than this product.
- Please download the latest electronic version of the materials. The content of this manual is for reference only. We will continuously improve the user experience. If there are any changes in technical parameters, we will not notify you separately.



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.

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

SPC1022-NB is an industrial-grade isolated USB-to-serial module designed to bridge computer USB interfaces with physical serial ports, enabling seamless data conversion and facilitating communication between different devices. It incorporates high-speed isolation chips to ensure signal isolation between USB and RS-232/RS-485 interfaces.

Equipped with dual level conversion chips, the module supports flexible bidirectional conversion between USB and RS-232/RS-485 signals. It is compatible with Windows, Linux, and Mac OS systems, allowing for easy setup and operation. The module is housed in a flame-retardant plastic casing, enhancing operational safety.

The internal circuitry is meticulously engineered with optimized impedance matching for critical signal paths, minimizing signal attenuation during high-speed data transmission. It also features a built-in 200mA self-resetting fuse that automatically disconnects when current exceeds 200mA, providing reliable protection for both the device and the USB port.

Requiring independent power supply, the module supports DIN 35mm standard rail mounting for simple on-site installation and flexible deployment in various field applications.

· Technical Parameters

Basic Parameters	
Input Interface	USB-B interface | PC-side: USB 2.0
Output Interface	Device: RS232/RS485 Serial Signal
Interface Chip	FT232, FTDI
Communication Distance	RS232: 15m (typical) RS485: 1200m (typical)
Operating Mode	RS232 Asynchronous Full-Duplex RS485 Asynchronous Half-Duplex Differential
Transmission Rate	RS232/RS485: 1Mbps
Power Supply	USB port, DC 5V
Current Consumption	⩽100mA
Intelligent Burnout Protection	Built-in 200mA resettable fuse
Protection Rating	RS232: ±15kV ESD RS485: 600W TVS / GDT Protection
Cascade Capability	Supports cascading of up to 128 RS485 devices
Load Capacity	Supports point-to-multipoint communication RS485: 1 host supports 32 devices RS232: Point-to-point (1-to-1)
Compatibility	Compatible with Windows XP, Windows 7/8/10/11, Linux, and Mac OS
Isolation Voltage	3000 VDC
Electromagnetic Compatibility	Complies with GB/T 18268.1 (IEC 61326-1)
Environmental Conditions	
Operating Temperature	-40℃～+80℃
Storage Temperature	-40℃～+85℃
Relative Humidity	10%～90%RH (non-condensing)
Atmospheric Pressure	80kPa～106kPa

· Terminal Description

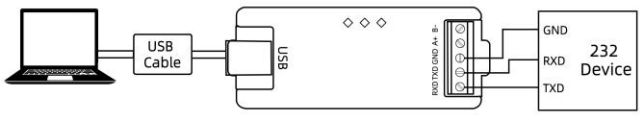
Terminal Mark	Function Description
RXD	RS232 Data Receive
TXD	RS232 Data Transmit
GND	RS485/RS232 Signal Ground
A+	RS485 Communication Signal Positive
B-	RS485 Communication Signal Negative
USB	USB-B port, connected to a USB port via a conversion cable

· Indicator Description

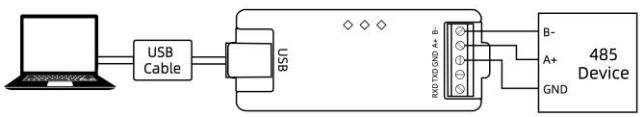
Indicator Mark	Function Description
PWR	The power indicator remains steadily lit when the USB port is connected to a PC and powered on.
TXD	The indicator flashes when the PC sends data to the device.
RXD	The indicator also flashes when the PC receives data from the device

· Wiring and indication

① USB to RS232 Mode

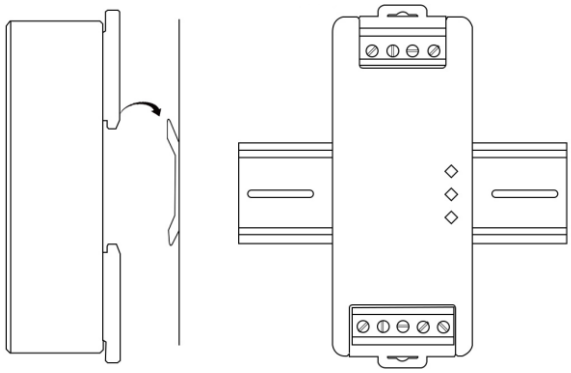


② USB to RS485 Mode

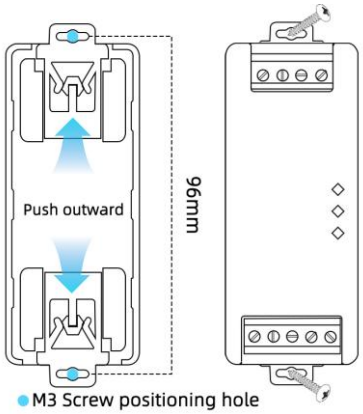


· Installation Instructions

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

Taking the SPC1022-NB11L as an example: USB to RS232+485 communication module, supports RS485 communication, N-shaped form factor, module DC12-36V power supply.

SPC	1	02	2	N	B	1	1	L
Product Type	Communication Type	Conversion Channels	Serial No.	Product appearance	Communication Rate	Isolation Rating	Output Type	Power Supply
Communication Signal Converter Module	1 USB 2 ETH 3 Bluetooth 4 Wi-F 5 CAN 6 Profine 7 LoRa 8 Serial Comm 9 Other	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 200K B High-Speed 1M C Ethernet 10M D Ethernet 100M E Other	0 Non-isolate 1 1500V 2 3000V 9 Other	0 RS232 1 RS485 2 Ethernet 3 Bluetooth 4 Wi-Fi 5 CAN 6 Profinet 7 LoRa 9 Hybrid Output	L DC12-36V H AC220V C +12V D +24V U USB-Powered