SPC1021-KB Isolated USB to Serial Communication Module

User Manual

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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 ℃;

· 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.
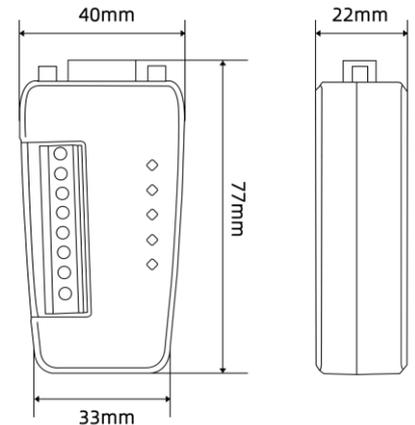
II. Product Dimensions

• Product dimensions:**77mm (L) X 40mm (W) X 22mm (H)**

• Housing made of industrial-grade flame-retardant plastic.

III. Operating Environment

· Do not expose this product to high or low temperature environments;

· There shall be no strong vibration, impact, high current, spark or other electromagnetic induction effects in the surrounding
  environment;

· The usage environment should not contain flammable or explosive substances, and there should be no harmful substances that have a
  serious corrosive effect on metal and plastic parts;

· Do not use or store in harsh environments, as it may affect the electrical performance of the product.
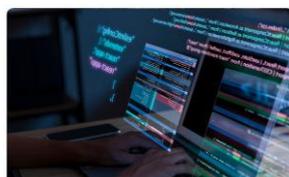
IV. After-Sales Service

We are committed to providing you with comprehensive after-sales service and warranty policy. The product warranty period is one year.
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

Industrial Automation	Programming debugging	smart home	access control system

· Product Introduction

The SPC1021-KB is an isolated USB-to-serial communication module. Its core function is to bridge the gap between a computer's USB interface and a physical serial port, enabling data conversion between the two and facilitating communication between different devices. It features a built-in high-speed isolation chip that isolates USB and RS485/RS232 signals.

The module incorporates two built-in level conversion chips, enabling flexible conversion between USB, RS232, and RS485 levels. Compatible with Windows, Linux, and Mac OS, it offers easy connection and convenience. Its flame-retardant plastic housing enhances safety during operation.

The module's internal circuitry is meticulously designed, with optimized impedance matching in key signal paths to minimize signal attenuation during high-speed data transmission. The module also features a built-in 200mA auto-recovery fuse that automatically disconnects when current exceeds 200mA, protecting both your device and the USB port.

· Technical Parameters

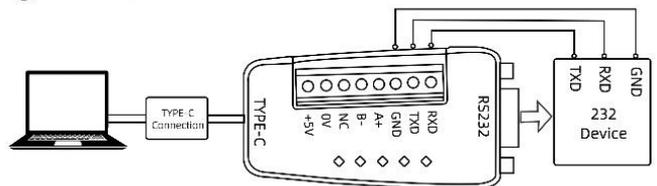| Basic Parameters	
Input Interface	PC: USB 2.0
Output Interface	Device: RS232 and RS485 serial signals
Interface Chip	FT232 FTDI Chip
Communication Distance	RS232: 15m (typical) RS485: 1200m (typical)
Operating Mode	RS232 Asynchronous Full-Duplex RS485 Asynchronous Half-Duplex Differential
Transmission 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
Load Capacity	Supports point-to-multipoint, 485:1 with 32, 232:1 pairs 1
Compatibility	Supports Windows XP, Windows 7/8/10/11,Linux, and Mac OS
Isolation Voltage	3000VDC
Environmental Conditions	
Operating Temperature	-40℃～+80℃
Storage Temperature	-40℃～+85℃
Relative Humidity	10%～90%RH (non-condensing)
Atmospheric Pressure	80kPa～106kPa

· Indicator Description

Indicator Mark	Function Description
PWR	The power indicator is steady on when the USB port is connected to a PC and powered.
USB	The indicator flashes when the PC is sending data to the device.
TXD	The indicator flashes when the RS485/RS232 port is sending data.
RS485	The indicator flashes when the RS485 port receives data.
RS232	The indicator flashes when the RS232 port receives data.

· Terminal Description

Terminal Mark	Function Description
RS232	DB9 male connector 2-pin RXD, 3-pin TXD
RXD	RS232 data receiver
TXD	RS232 data transmitter
GND	RS485/RS232 signal ground or shield connection
A+	RS485 communication signal positive
B-	RS485 communication signal negative
NC	No connection
0V	Power supply negative or common ground with USB
+5V	+5V power input when no USB power is supplied
TYPE-C	Type-C connector, connects to USB via a converter cable

· Wiring and indication

① USB to 232 Mode

② USB to 485 Mode