
SM100-C (III) HART-USB MODEM USER MANUAL

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<http://www.smdznet.com>

<http://www.hart-rs232.com>

Contents

1 SM100-C (III) Introduction.....	- 3 -
1.1 Product Introduction.....	- 3 -
1.2 Product Specifications.....	- 3 -
1.3 Product Features.....	- 3 -
1.4 Main Parameters.....	- 3 -
2 SM100-C (III) Diagram and LED Functions.....	- 4 -
2.1 Diagram.....	- 4 -
2.2 Connection Diagram.....	- 4 -
2.3 LED Indications.....	- 6 -
3 Configuration Software Functions and Operation.....	- 7 -
3.1 Communicating Connection.....	- 7 -
3.2 Online Test.....	- 8 -
3.3 Instrument IO Correction.....	- 8 -
3.4 Basic Parameters Configuration of Instrument.....	- 9 -
3.5 Basic Information of Instrument.....	- 9 -
3.6 Parameters Configuration of Temperature Transmitter.....	- 10 -
3.7 Differential Pressure and Multivariable Transmitter.....	- 10 -
4 WIFI Virtual Serial Port Creation.....	- 11 -
4.1 Cable Connection.....	- 11 -
4.2 Wireless Hotspot Connection.....	- 11 -
4.3 Virtual Serial Port Creation.....	- 12 -
5 Service and Warranty Information.....	- 13 -

Statement:

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Please visit the support website www.smdznet.com for the latest information. If any confusion towards the specifications and information contained in this manual, please contact us or the local supplier directly. Please visit the site smdz2007@smdznet.com or contact QQ: 2850687718 if encountering problems.

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1 SM100-C (Ⅲ) Introduction

1.1 Product Introduction

The SM100 - C is a HART intelligent communicator designed by JIAXING SONGMAO and complied with the industrial standard. It communicates with any manufacturer of HART instruments, such as Rosemount, E + H, Siemens, Cologne, Yokogawa, SIC etc. The appearance is complied with integrated design, enabling to install and carry portably. The communicator is compatible with a standard USB interface and serial bus power supply to ensure the convenience and quickness.

Since the SM100 - C intelligent communicator is specially designed for industrial product integration, its design specialized in the temperature range, vibration, electromagnetic compatibility and interface diversity etc.. The SM100 - C ensures the stable and high efficient operation in the bad environment and makes it ideal for high quality with the device.

1.2 Product Specifications

- Supports Operation System Windows XP, Windows7, Windows10
- Compatible with USB V1.1, USB CDC V1.1 Standard
- Compatible with USB V2.0, USB CDC V2.0 Standard
- USB Bus Power Supply (Uninsulated Cables) , DC 5V DC 30mA
- Standard HART Protocol Transmission
- Transparent Data Transfer
- Compatible with HART Protocol

1.3 Product Features

- Built-In Isolated DC 24V Output. Provide Power Supply and Communication to Two-Wire Channel Instrument, to Maximize the Reduction of Wiring.
- HART Signal Transfer with Isolation Transformer
- Built-In High Precision 250Ω Resistance. No need to add resistance if communication test.
- Provides Switch to Transfer with WIFI Connection
- LED Panel to Monitor the Operation Status

1.4 Main Parameters

- Physical Dimensions (L × W × H) : 71mm × 52 mm × 22 mm.
- Operation Ambient Temperature : -20℃~+80℃
- Relative Humidity: 10% ~ 80%

2 SM100-C (Ⅲ) Diagram and LED Functions

2.1 Diagram

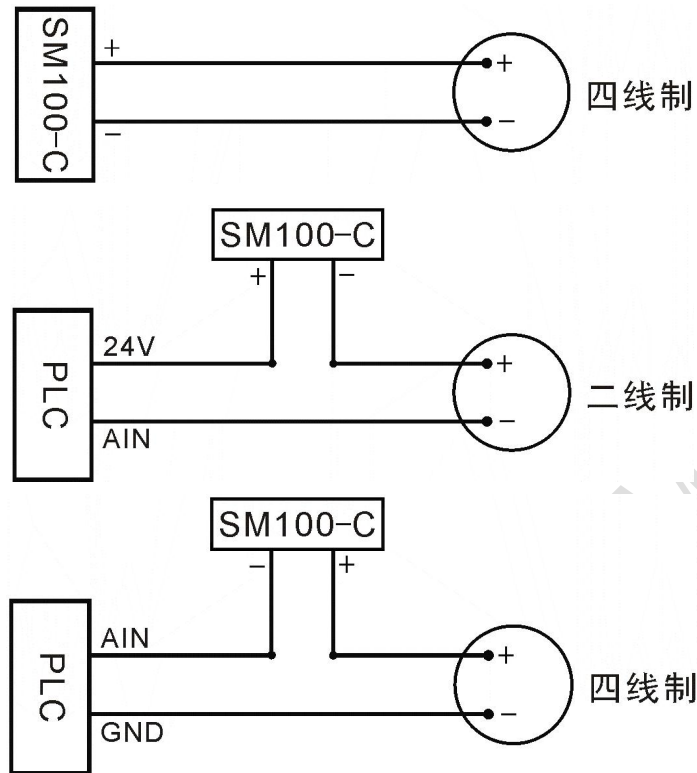


2.2 Connection Diagram

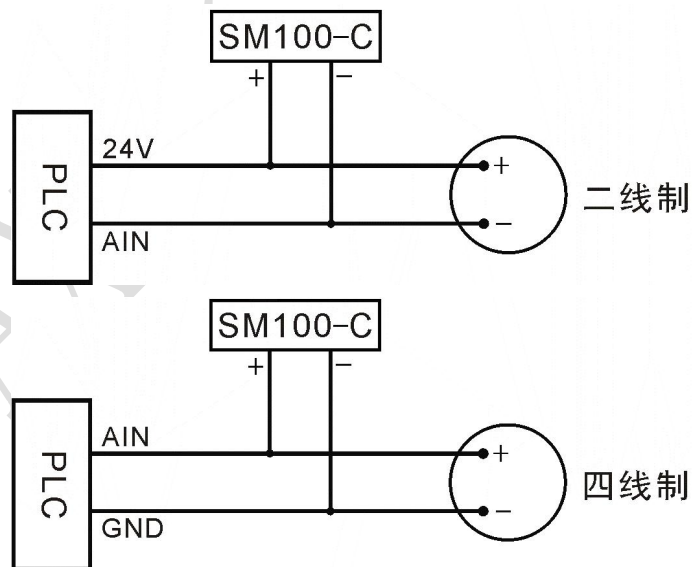
- Communication cable: Black USB cable (48cm), using for communication between SM100-C and PC, and provide power supply to SM100-C.
- Test cable: Red and black cables, using for connection between SM100-C and HART instruments.
- Serial port change-over switch: Two serial port conversion modes: USB and WIFI.
 - Switch to USB to enable the communication between communication cable and PC. The communication cable is connected with PC.
 - Switch to WIFI to enable the communication between virtual serial port and PC. The communication cable is connected with the charger.
- HART change-over switch: Three HART conversion modes: 250Ω, NO, 24V/250Ω.
 - Switch to 250Ω to instruct the working status with built-in 250Ω resistance.
 - Switch to NO to instruct the working status without built-in 24V or 250Ω resistance.
 - Switch to 24V/250Ω to instruct the working status with built-in 24V and 250Ω resistance.

You can switch the change-over switch to the proper position according to the physical condition, then start the connection.

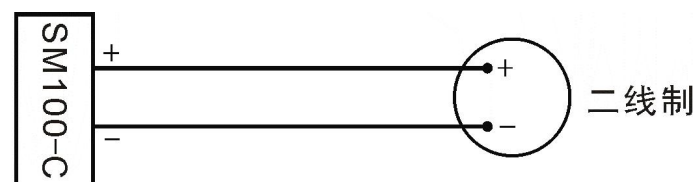
1. With Built-In 250Ω Resistance



2. Without Built-In 24V or 250Ω Resistance



3. With Built-In 24V and 250Ω Resistance



2.3 LED Indications

- POW Power LED: Constant lighting when normal communication
- TXD Communication LED: Blinking when data transfers
- RXD Communication LED: Blinking when data receives

3 Configuration Software Functions and Operation

3.1 Communicating Connection

1) Connecting to HART instrument

Please take the wiring diagram 2.2 for reference. According to the HART instrument, you can turn the HART change-over switch to the proper position, then connect the Test cable to the HART instrument.

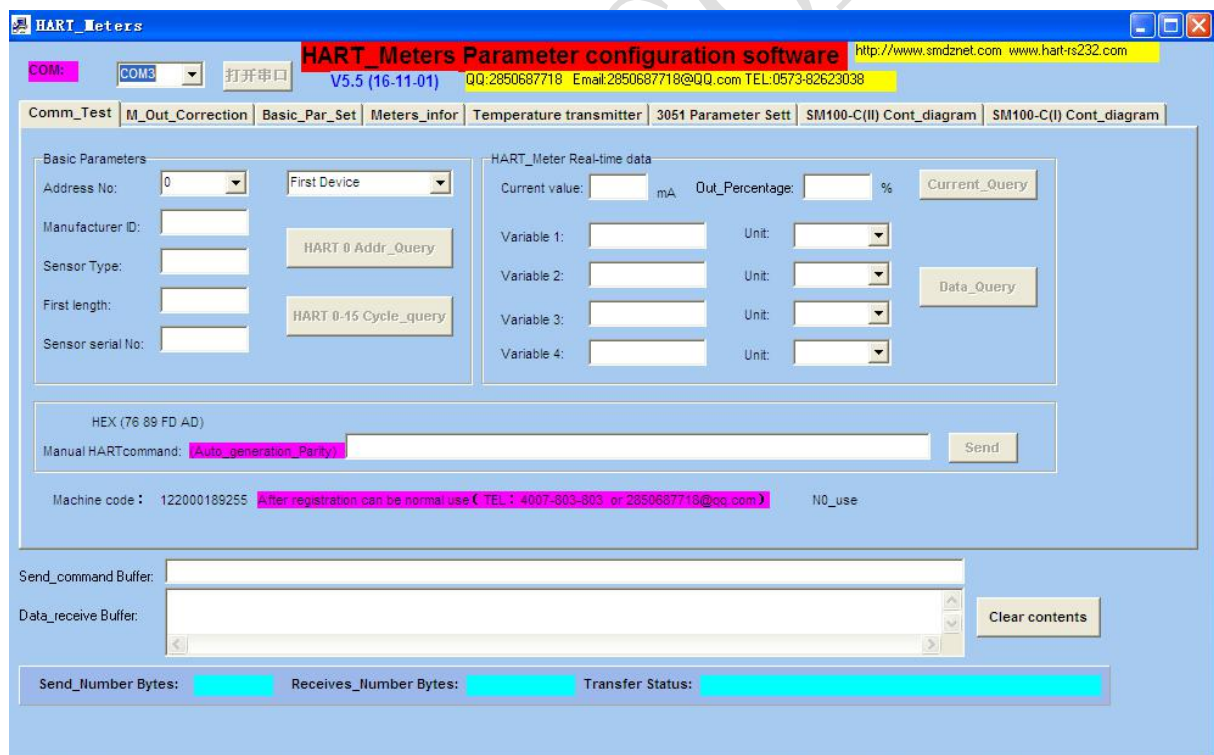
2) Connecting to Serial port

Please take the wiring diagram 2.2 for reference. According to the physical condition, you can turn the Serial port change-over switch to the proper position, then connect the Communication cable.

a. USB Serial Port: Connect the USB communication cable to the computer. Right-click **Computer**, then choose **Property-Device Manager** to view the **Serial Number**.

b. WIFI Virtual Serial Port: Please refer to section of 4. **WIFI Virtual Serial Port Creation** to create **Virtual Serial Number**.

3) Turn on the configuration and debugging software. According to the serial number, select the correct serial number and open the serial port.



3.2 Online Test

HART Meters Parameter configuration software <http://www.smdznet.com> www.hart-rs232.com
V5.5 (16-11-01) QQ:2850687718 Email:2850687718@qq.com TEL:0573-82623038

COM: COM3 打开串口

Comm_Test | M_Out_Correction | Basic_Par_Set | Meters_infor | Temperature transmitter | 3051 Parameter Sett | SM100-C(II) Cont_diagram | SM100-C(I) Cont_diagram

Basic Parameters

Address No: 0 First Device
 Manufacturer ID: HART 0 Addr_Query
 Sensor Type: HART 0-15 Cycle_query
 First length:
 Sensor serial No:

HART_Meter Real-time data

Current value: mA Out_Percentage: % Current_Query
 Variable 1: Unit:
 Variable 2: Unit:
 Variable 3: Unit:
 Variable 4: Unit: Data_Query

HEX (76 89 FD AD)
 Manual HARTCommand: Auto_generation_Parity Send
 Machine code: 122000189255 After registration can be normal use (TEL : 4007-803-803 or 2850687718@qq.com) NO_use

Send_command Buffer:
 Data_receive Buffer: Clear contents

Send_Number Bytes: Receives_Number Bytes: Transfer Status:

3.3 Instrument IO Correction

HART Meters Parameter configuration software <http://www.smdznet.com> www.hart-rs232.com
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COM: COM3 打开串口

Comm_Test | M_Out_Correction | Basic_Par_Set | Meters_infor | Temperature transmitter | 3051 Parameter Sett | SM100-C(II) Cont_diagram | SM100-C(I) Cont_diagram

Output current

Out_H_Current Adjus: mA SET Notice:set First_Set 20 mA Output Set in 18mA between 20 mA adjusting 4n SET Zoer Button
 Out_L_Current Adjus: mA SET Notice:set First_Set 4 mA Output Set in 2mA between 6mA adjusting 20m SET Span Button

电流输出

4mA Out 20mA Out Exit the fixed output mode
 8mA Out 16mA Out
 12mA Out Other mA SET

Display Adjus

Zoer ADJ SET
 Low_ADJ: SET
 Higt_ADJ: SET

Send_command Buffer:
 Data_receive Buffer: Clear contents

Send_Number Bytes: Receives_Number Bytes: Transfer Status:

3.4 Basic Parameters Configuration of Instrument

The screenshot shows the 'HART_Meters Parameter configuration software' window. The 'Basic_Par_Set' tab is selected. The interface includes the following sections:

- Measuring range:** Fields for 'Meas_Upper_limit', 'Meas_Lower_limit', and 'Unit' with a 'Query' button.
- State of the signal:** Fields for 'First variable unit' (with a 'SET' button), '20 mA Out Values' (with a 'SET' button), and '4 mA Out Values' (with a 'SET' button). It also includes 'Damping time' in seconds (with a 'SET' button) and 'Out_Character' (with a 'SET' button and a 'Query' button).
- Burst mode Test:** A 'Burst mode command' dropdown set to '1' with a 'SET' button, and buttons for 'Info Burst mode' and 'Quit Burst mode'.
- Sensing Information:** A large empty text area.
- Send_command Buffer:** A text input field.
- Data_receive Buffer:** A text input field with a 'Clear contents' button.
- Status Bar:** Displays 'Send_Number Bytes', 'Receives_Number Bytes', and 'Transfer Status'.

3.5 Basic Information of Instrument

The screenshot shows the 'HART_Meters Parameter configuration software' window with the 'Meters_infor' tab selected. The interface includes the following sections:

- Equipment information:** A text input field (MAX 32 characters) with 'Query' and 'SET' buttons.
- markers:** A text input field (MAX 8 characters).
- descriptor:** A text input field (MAX 16 characters).
- Manufacture date:** Fields for 'year', 'month', and 'date' with 'Query' and 'SET' buttons.
- Sensing_Serial NUM:** A text input field with 'Query' and 'SET' buttons, and a 'Restore the factory parameter' button.
- Assembly_NUM:** A text input field with 'Query' and 'SET' buttons, and a 'Backup sensor parameters' button.
- Modify_HART_Addrr:** A dropdown menu with a 'Query' button.
- Send_command Buffer:** A text input field.
- Data_receive Buffer:** A text input field with a 'Clear contents' button.
- Status Bar:** Displays 'Send_Number Bytes', 'Receives_Number Bytes', and 'Transfer Status'.

3.6 Parameters Configuration of Temperature Transmitter

HART_Meters **HART_Meters Parameter configuration software** <http://www.smdznet.com> www.hart-rs232.com
V5.5 (16-11-01) QQ:2850687718 Email:2850687718@QQ.com TEL:0573-82623038

Comm_Test M_Out_Correction Basic_Par_Set Meters_infor **Temperature transmitter** 3051 Parameter Sett SM100-C(II) Cont_diagram SM100-C(I) Cont_diagram

Siemens temperature transmitter
Siemens HART protocol sensor type: [dropdown] [Query] [SET]

Emerson 644 temperature sensor and connection method
sensor type: [dropdown] Connection mode: [dropdown] [Query] [SET]

Emerson 848 t temperature sensor and connection method
Temperature channel: CH1
sensor type: [dropdown] Connection mode: [dropdown] [Query] [SET]
Temperature: degc [dropdown] [SET]

Send_command Buffer: [text box]
Data_receive Buffer: [text box] [Clear contents]

Send_Number Bytes: [progress bar] Receives_Number Bytes: [progress bar] Transfer Status: [progress bar]

3.7 Differential Pressure and Multivariable Transmitter

HART_Meters **HART_Meters Parameter configuration software** <http://www.smdznet.com> www.hart-rs232.com
V5.5 (16-11-01) QQ:2850687718 Email:2850687718@QQ.com TEL:0573-82623038

Comm_Test M_Out_Correction Basic_Par_Set Meters_infor Temperature transmitter **3051 Parameter Sett** SM100-C(II) Cont_diagram SM100-C(I) Cont_diagram

Rosemount 3051 differential pressure transmitter set to zero
[differential pressure zero_SET]

Rosemount 300 SMV multivariable parameter Settings
Variable output configuration:
Variable1: differential pressure Variable2: differential pressure [Query]
Variable3: differential pressure Variable4: differential pressure [SET]

display setting
Differ_Pressure: OFF Abso_Pressure: OFF Gage_Pressure: OFF
Proces_Temper: OFF Module_Temper: OFF Output(%Rang): OFF
Flow_Rate: OFF Totalizer: OFF [Query] [SET]

Send_command Buffer: [text box]
Data_receive Buffer: [text box] [Clear contents]

Send_Number Bytes: [progress bar] Receives_Number Bytes: [progress bar] Transfer Status: [progress bar]

4 WIFI Virtual Serial Port Creation

4.1 Cable Connection

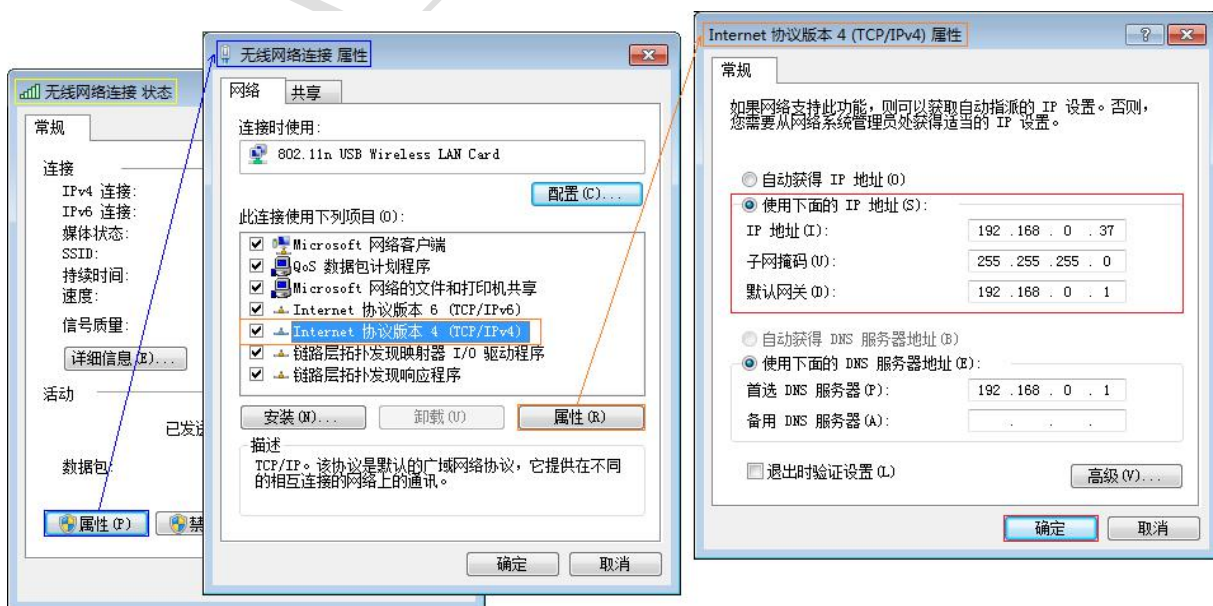
You can switch the serial port to WIFI virtual serial port connector, and then connect USB cable with the charger to supply power.

4.2 Wireless Hotspot Connection

1) Search for the wireless network, and choose the wireless hotspot SM100 - C, then click **Connect**.

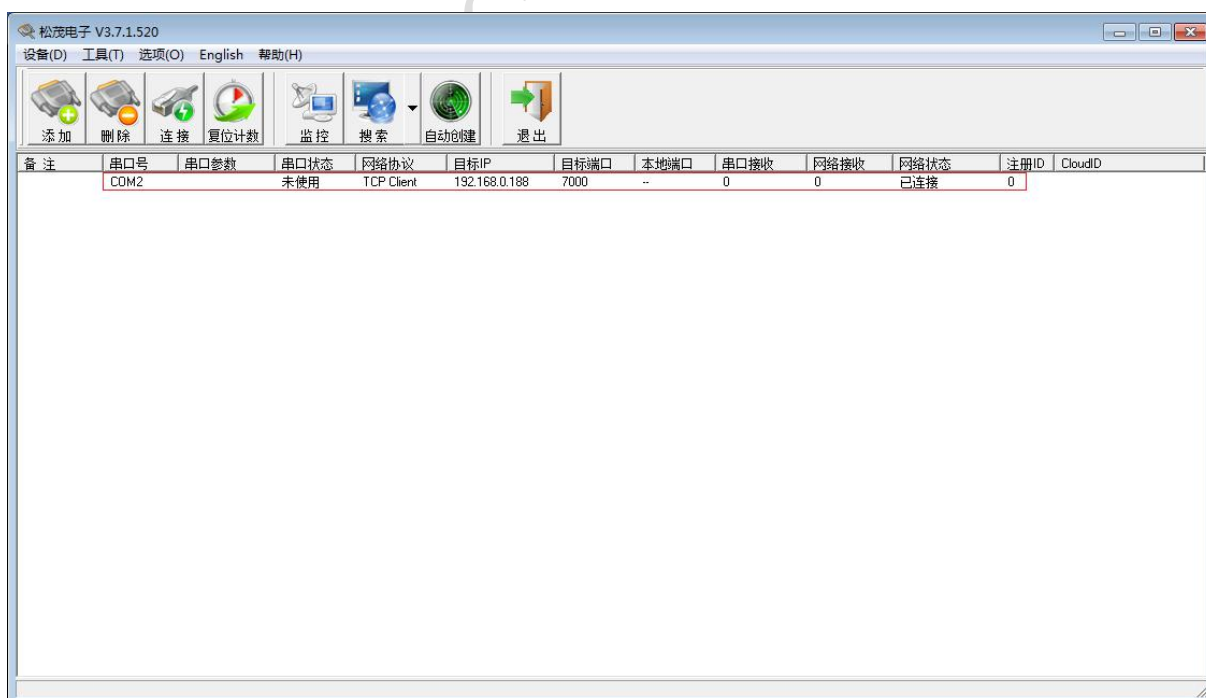
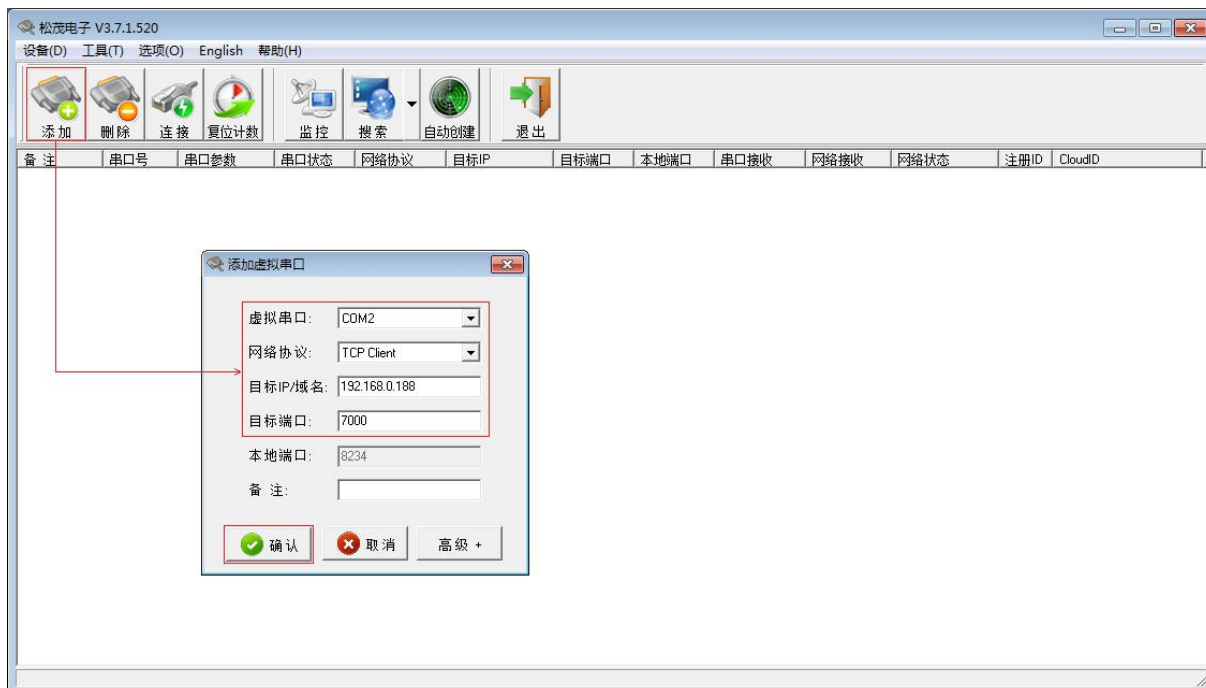


2) Configure the IP address for the wireless hotspot and modify it to the same network segment 192.168.0.#.



4.3 Virtual Serial Port Creation

You can start the virtual serial port configuration software, and click **Add**, and tap in the information of virtual serial port configuration in the pop-up window, then click **OK** to accomplish the creation for the virtual serial port. The serial port information would be displayed in the main window.



5 Service and Warranty Information

1. The warranty period for the product is 36 months with normal operation conditions from the date of purchase by end-customers.
2. The company warrants the Product to be free from defects in workmanship and technology for the Warranty Period.
3. This Free Warranty does not include such as but not limited to:
 - a. The Product has been tampered with, repaired and/or modified without the permission from the company;
 - b. Damage to the Product caused by external force and other natural disaster.
4. When the warranty service is needed, please contact us with calling the service hotline. We would maintain the warranty service and deliver the product back as soon as possible.
5. This warranty liability limits to the warranty period for the breakdown maintenance of the product, and do not assume other responsibilities.

Service Hotline: 4007-803-803