

S6000
TTL To Ethernet Converter
User's Manual



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1. Introduction

1.1 Overview

S6000 is an intelligent plug-and-play RS232 to Ethernet adapter that enables any device or machine with a serial port, to become Ethernet network and Internet enabled. Go from Ethernet to serial with S6000. It features a powerful built-in device server, so you can access your serial device from anywhere in the world over internet! S6000 is easily configured via Ethernet, and can also be set up through the serial port. use virtual com software, you do not need change your PC software and can operate your device through Ethernet.

1.2 Features

- Auto detected 10/100M High speed Ethernet
- AUTO MDI/MDIX, Use crossover cable or parallel cable connection
- Baud rate 300 ~ 25600 bps
- TCP Server, TCP Client, UDP client , UDP server
- Can work as Virtual COM
- Auto reconnect TCP connection
- Socket program reference
- Free setup software and setup Agreement available
- Agreement: ETHERNET, ARP, IP, UDP, TCP
- 3.3V or 5V two power input interface
- OEM and custom versions available

1.3 Applications

- Fire and Security Panels
- Vending Machines
- Point of Sale Terminals
- Remote equipment management
- IT management services
- Access Control
- Industrial Control
- Home Automation
- Instrumentation
- Building Control
- Power Management

1.4 Electrical Characteristics

DC Power Supply Voltage: Two DC Voltage can be choose

VCC: type: 3.3V, min: 3.15, max: 3.45 V

VDD: type: 5V, min: 4.5V, max: 5.5V

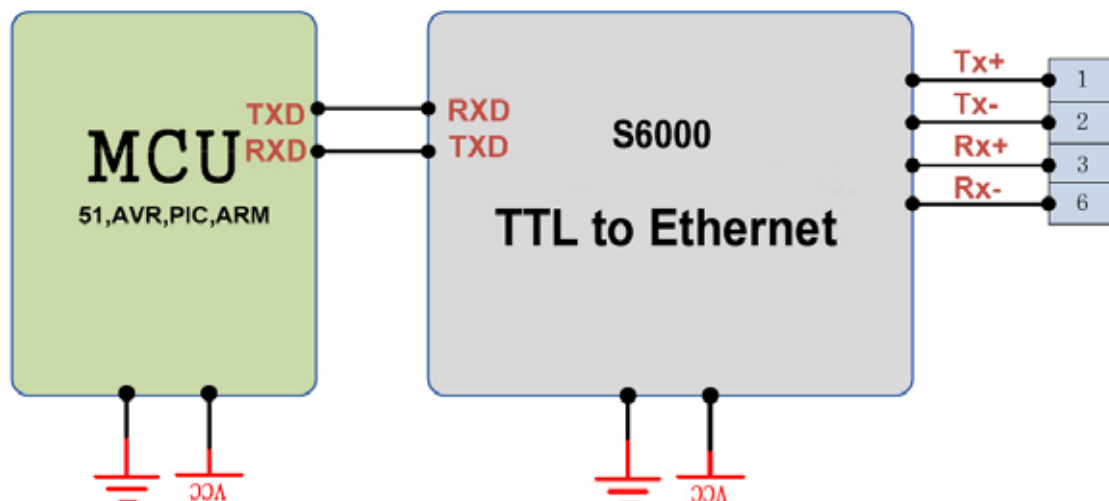
Operating supply current: Max: 180 MA

Operating Temperature: 0~75 °C (business version) - 25-80°C (industry version)

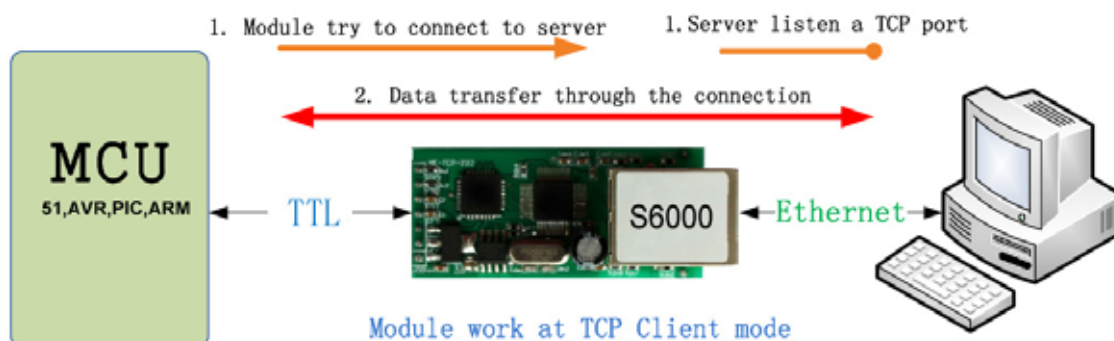
Storage temperature: -40~85 °C

2. Work Mode

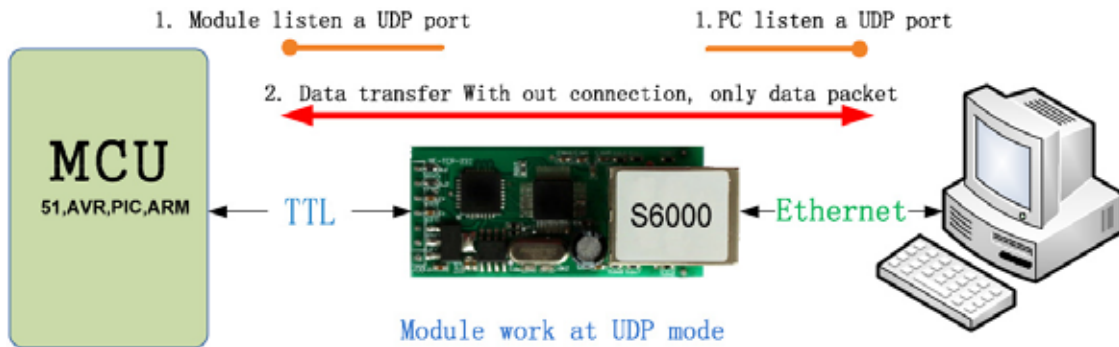
2.1 Block diagram



2.2 TCP Client Mode

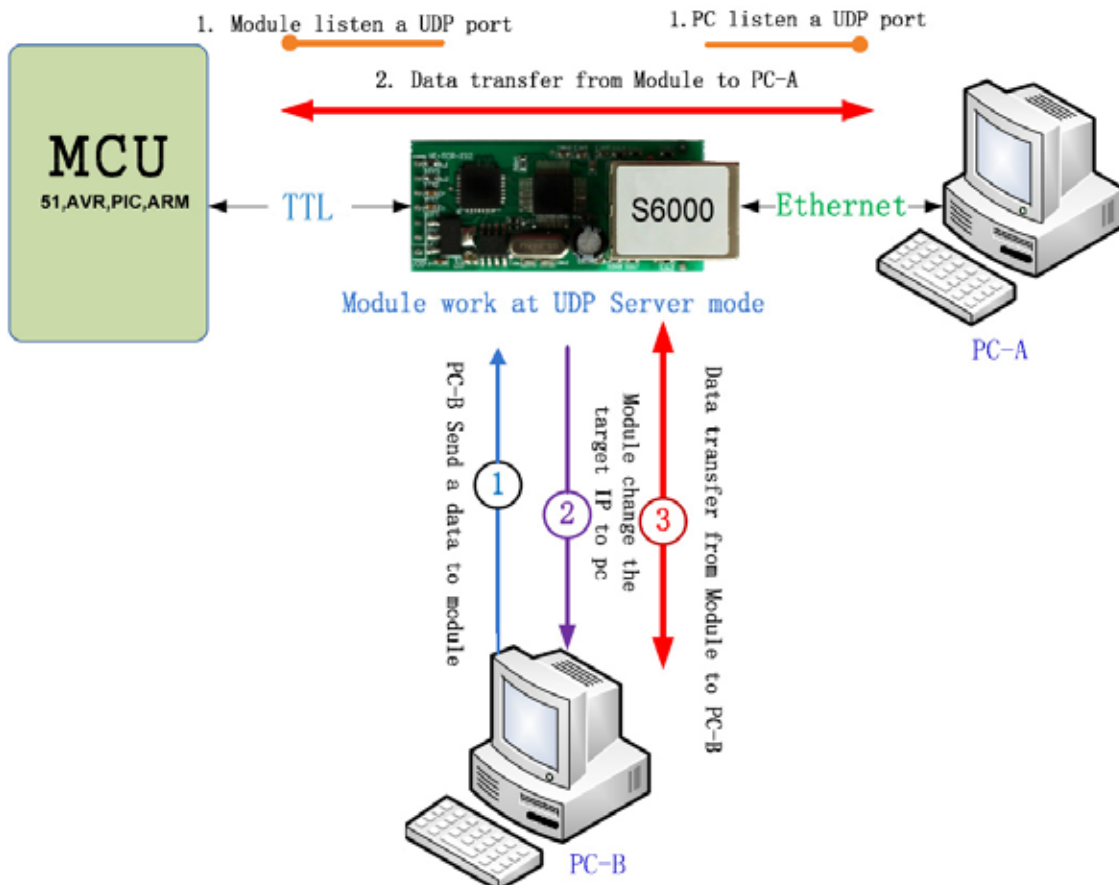


2.3 UDP client mode

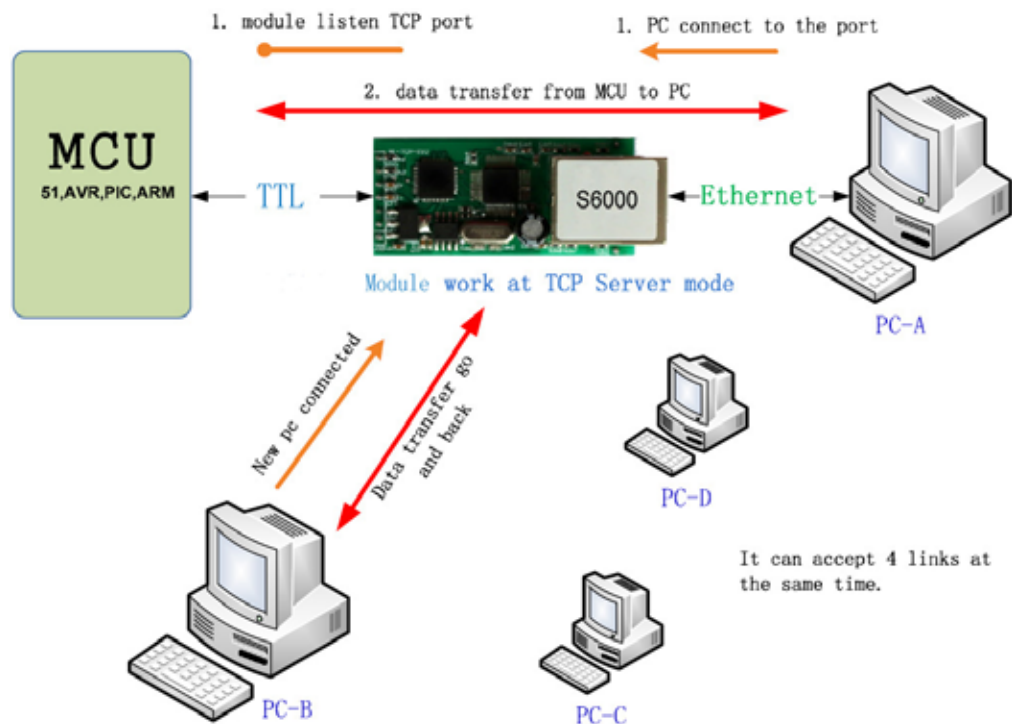


2.4 UDP server Mode

Like the socket UDP server in pc API. Many to one data transfer supported, the data from uart/232/485 part will be transformed to the last UDP packet's address.



2.5 TCP server Mode



3. Hardware Description

3.1 LED status

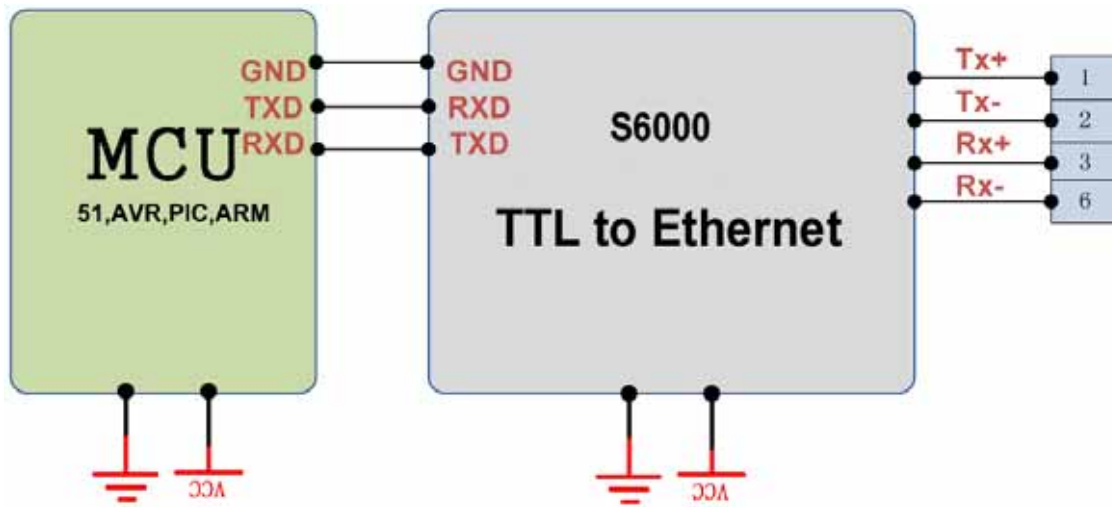
There is two leds in RJ45 connector, one is green, and the other is yellow.

LED	Name	Description
green	Link state	Light when 100Mbps network linked
yellow	Data transfer	Blink when there is data in or out

3.2 Pin description

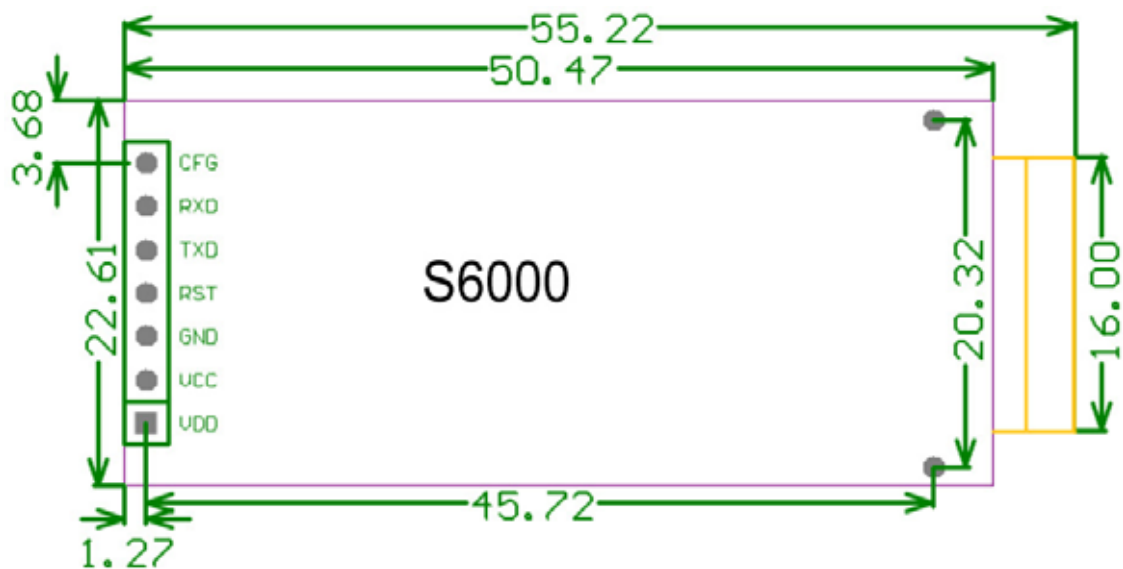
Pin	Name	Description
VDD	Power 1	4.5~5.5V
VCC	Power 2	3.3V
GND	GND	Power and Communications Ground
RST	Reset pin	200ms GND reset the module
TXD	UART transmission pin	5v tolerance
RXD	UART receive pin	5v tolerance
CFG	Configure pin	Configure mode when this pin GND, normal mode when VCC or idle

3.3 Connection Diagram



3.4 Package

Unit: mm,



Allegro / protel / pads / CAM PCF files available for your project design.

4. Configure

parameters: work mode, source IP, source port, net mask, gateway, UART baud rate, destination IP, destination port.

Configure command is 24byte length.

Pull down CFG pin change the module into configuration mode when use UART to config.

4.1 configure command format

Configure mode UART interface: 9600bps,n,8,1

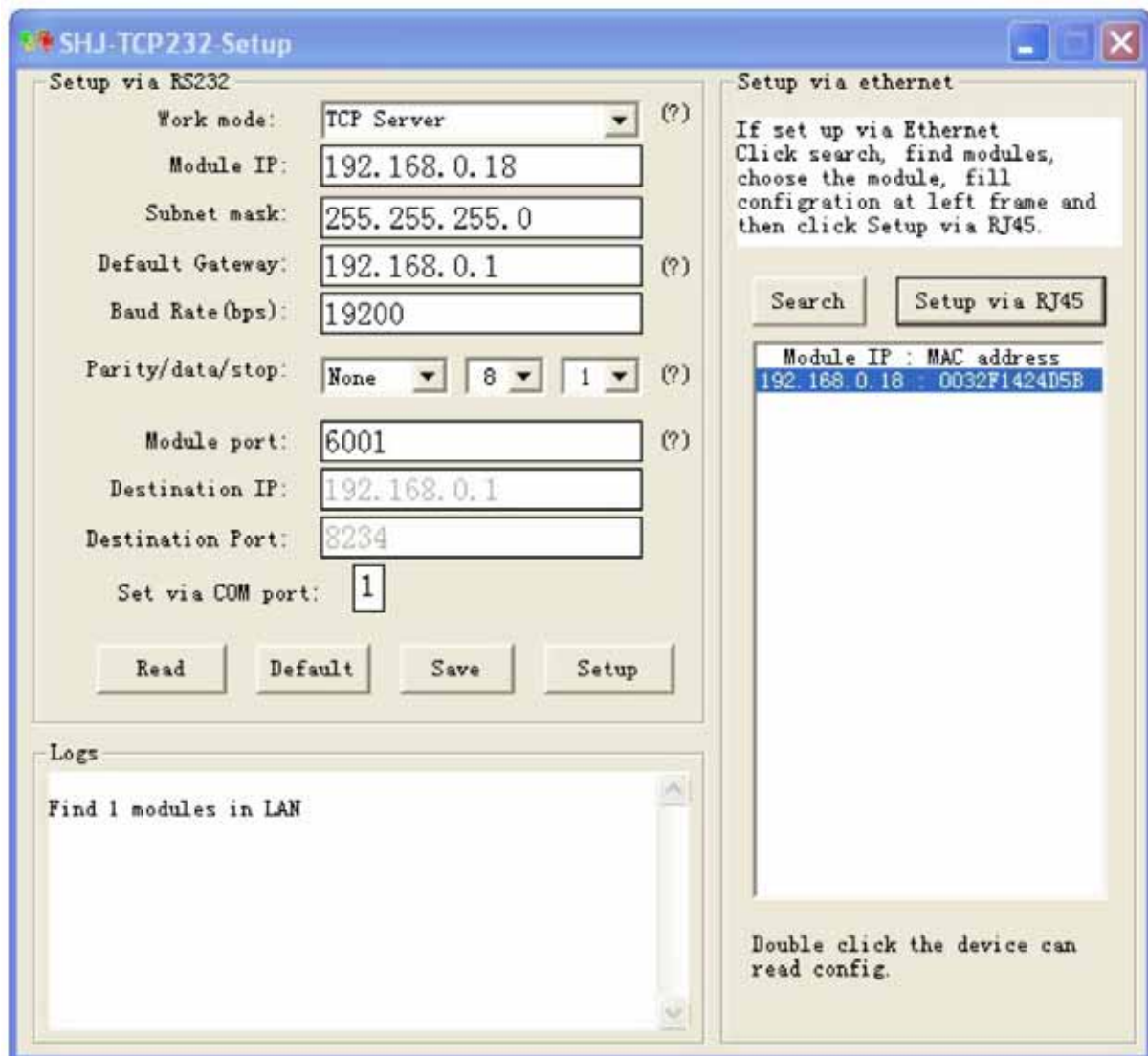
part	bytes	description	example	hex
prefix	2	0x55 0xAA	0x55 0xAA	0x55 0xAA
destination IP	4	destination IP	192.168.0.201	0xC9 0x00 0xA8 0xC0
destination port	2	Destination port	8234	0x2A 0x20
Host IP	4	The IP module hold	192.168.0.7	0x07 0x00 0xA8 0xC0
Host port	2	TCP/UDP source port	20108	0x8C 0x4E
Gateway	4	Gateway IP	192.168.0.201	0xC9 0x00 0xA8 0xC0
Work mode	1	0x01: TCP Client 0x00: UDP 0x02: UDP Server	TCP mode	0x01
baud rate	3	UART baud rate	115200	0x00 0xC2 0x01
Reserved	1	Reserved	00	0x00
checksum	1	Sum(destination IP, destination port, host IP, host port, gateway, work mode, baud rate, reserved)	0xB9	0xB9
Full example: 55 AA C9 00 A8 C0 2A 20 07 00 A8 C0 8C 4E C9 00 A8 C0 01 00 C2 01 00 B9				

* once in configure mode, the UART parameter change to 9600bps,n,8,1, and a 'U' ascii character is send out to ensure the control MCU that in the configure mode. If the 24byte command has effect, a 'K' ascii character is send back to control MCU. If configure command format error, an 'E' character will be send back to control MCU. If the error is the checksum not match, the 1byte right checksum will be send back to control MCU also.

4.2 configure through rs232

1. Power on module, and connect CFG to GND, make module to setup status.
2. Write settings and click Setup.
3. After Setting, left CFG free or connect to VCC, module begin work.
4. The save and Default button would useful for you.

Note: the module RS232 is TTL lever, you need a RS232 to TTL convert to connect it to you PC.



4.3 configure through RJ45

The new version modules support Setup via RJ45.

Click search, find modules, choose the module, fill configuration at left frame and then click Setup via RJ45.

The screenshot shows the 'SHJ-TCP232-Setup' window. It is divided into two main sections: 'Setup via RS232' on the left and 'Setup via ethernet' on the right. The 'Setup via RS232' section contains fields for Work mode (TCP Server), Module IP (192.168.0.18), Subnet mask (255.255.255.0), Default Gateway (192.168.0.1), Baud Rate (19200), Parity/data/stop (None, 8, 1), Module port (6001), Destination IP (192.168.0.1), Destination Port (8234), and Set via COM port (1). Below these fields are buttons for Read, Default, Save, and Setup. The 'Setup via ethernet' section contains a text box with instructions: 'If set up via Ethernet Click search, find modules, choose the module, fill configuration at left frame and then click Setup via RJ45.' Below this are buttons for Search and Setup via RJ45. A table lists the found modules with columns for Module IP and MAC address. The first entry is 192.168.0.18 with MAC address 0032F1424D5B. At the bottom of the window is a Logs section with the text 'Find 1 modules in LAN'.

SHJ-TCP232-Setup

Setup via RS232

Work mode: TCP Server (?)

Module IP: 192.168.0.18

Subnet mask: 255.255.255.0

Default Gateway: 192.168.0.1 (?)

Baud Rate(bps): 19200

Parity/data/stop: None 8 1 (?)

Module port: 6001 (?)

Destination IP: 192.168.0.1

Destination Port: 8234

Set via COM port: 1

Read Default Save Setup

Setup via ethernet

If set up via Ethernet
Click search, find modules,
choose the module, fill
configuration at left frame and
then click Setup via RJ45.

Search Setup via RJ45

Module IP	MAC address
192.168.0.18	0032F1424D5B

Double click the device can read config.

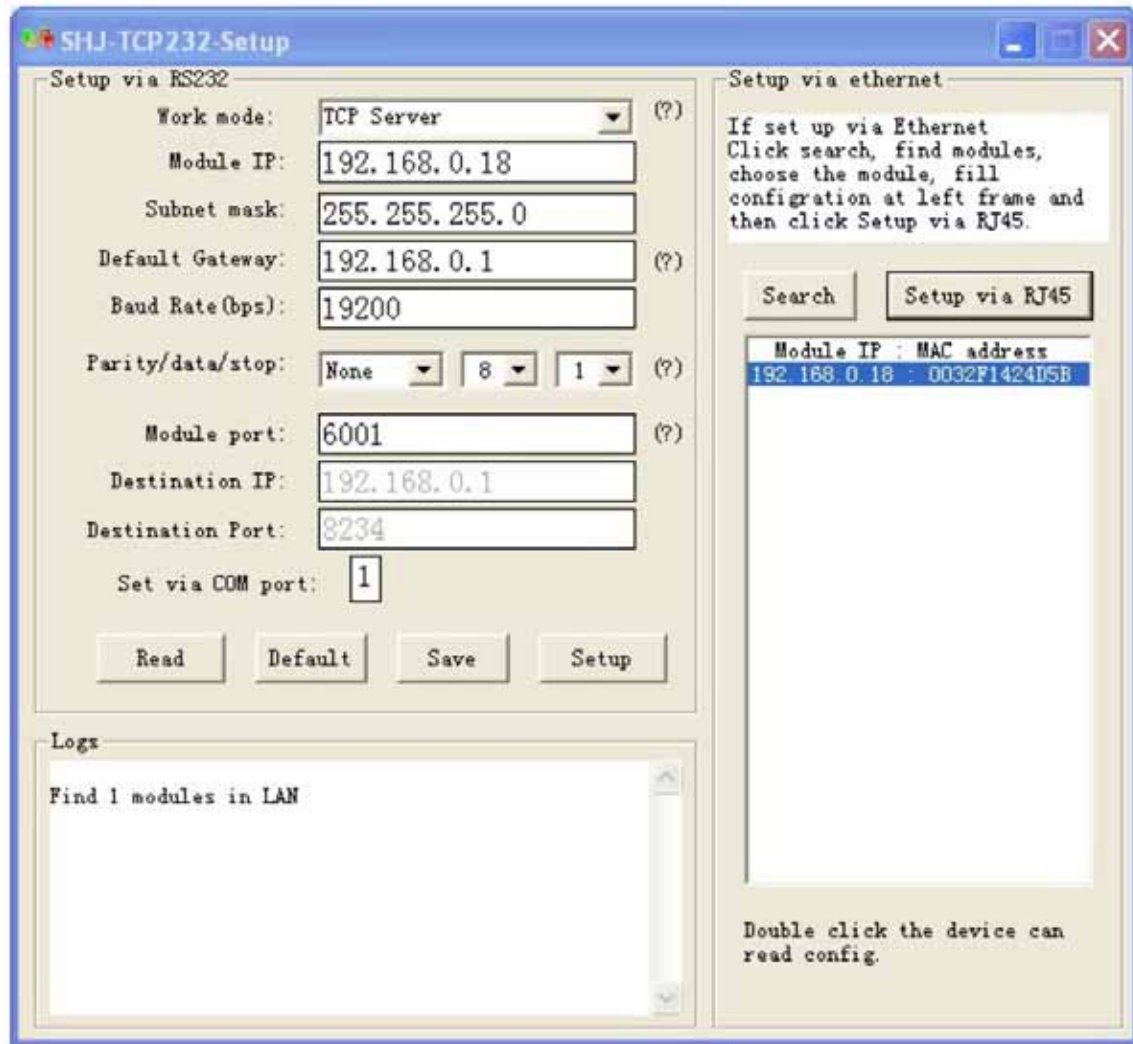
Logs

Find 1 modules in LAN

5. Test Methods

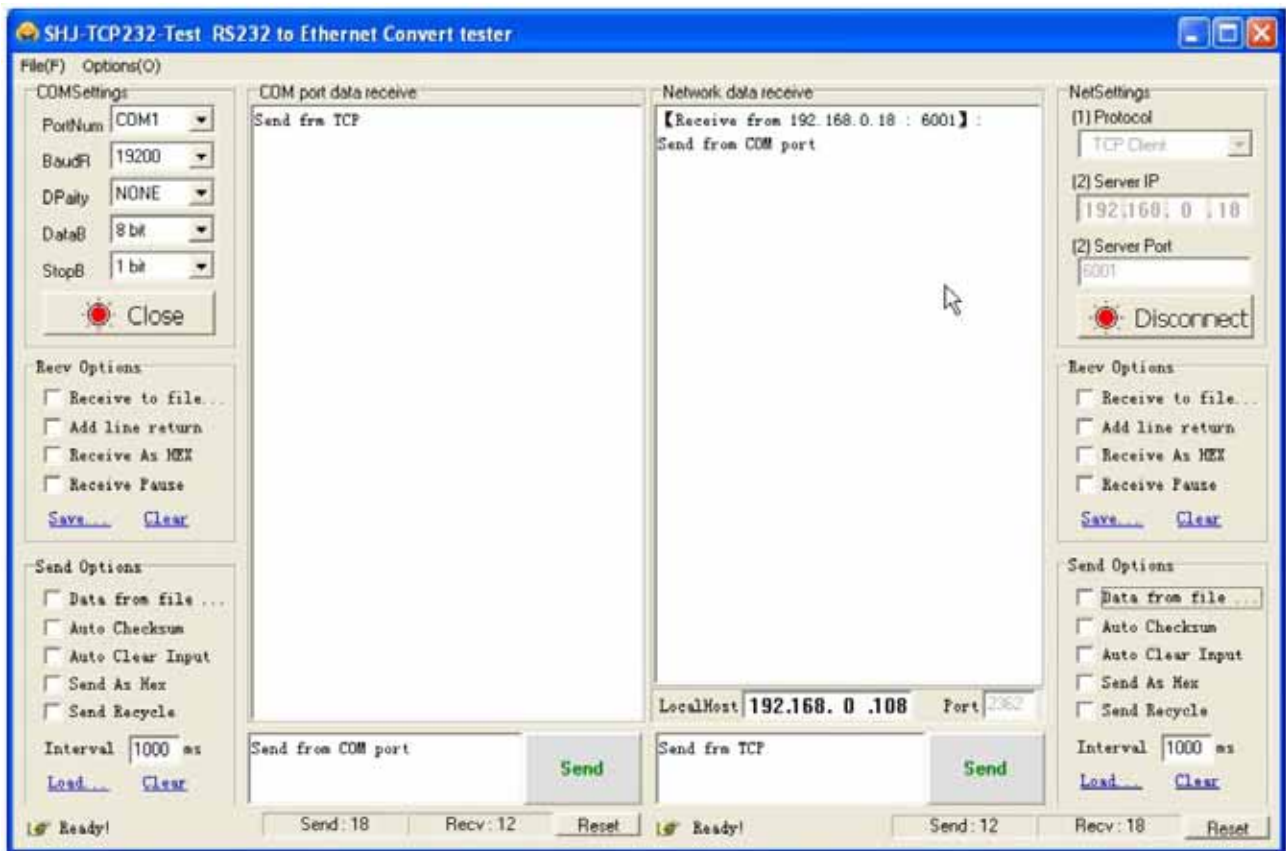
5.1 General Test

Default setup is as below picture.



Test:

1. material: pc with rs232(or use USB to rs232 cable), 3.3V or 5V power, rs232 cable, Network Cable, COM debug software, TCP/IP debug software(in CD, also can be download).
2. Connection: connect module rs232 to pc rs232, RJ45 to pc RJ45 or the same router (same subnet). Notice : USE TTL to USB convert or TTL to RS232 convert
3. Power on the module 3.3V on VCC or 5V on VDD.
4. Setup PC IP to 192.168.0.108.
5. PING 192.168.0.18 (it is optional action)
6. open the SHJ-TCP232-test.exe software in CD, TCP client server port 6001, TCP client as follow picture.



Click connect, Open COM port.

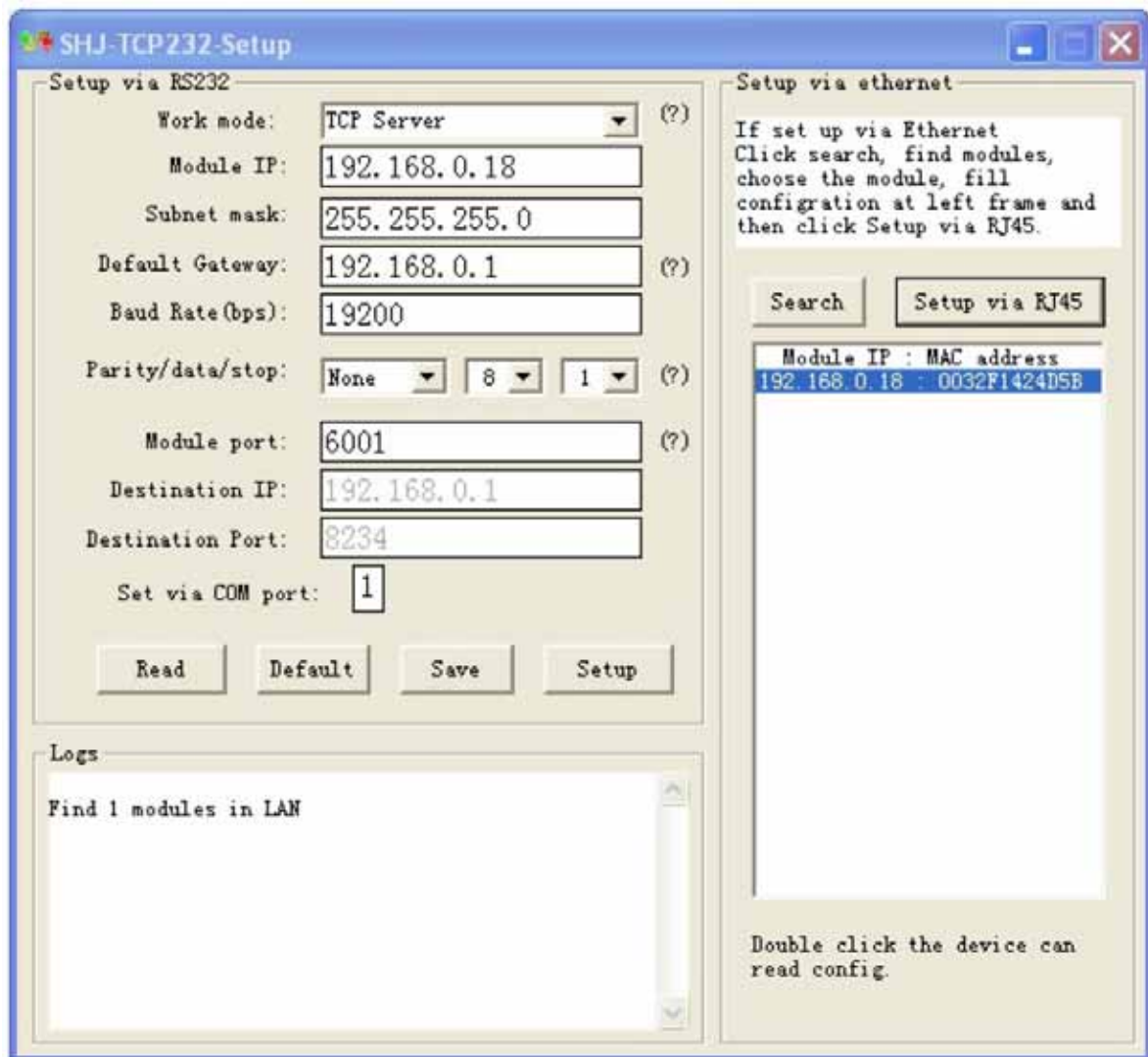
7. Now you can transfer data from PC RS232 to Ethernet.

You can use other TCP UDP test software and COM port test software as you like.

5.2 virtual COM

Single-port TCP/IP - serial bridge (RFC 2217)

1. setup the module

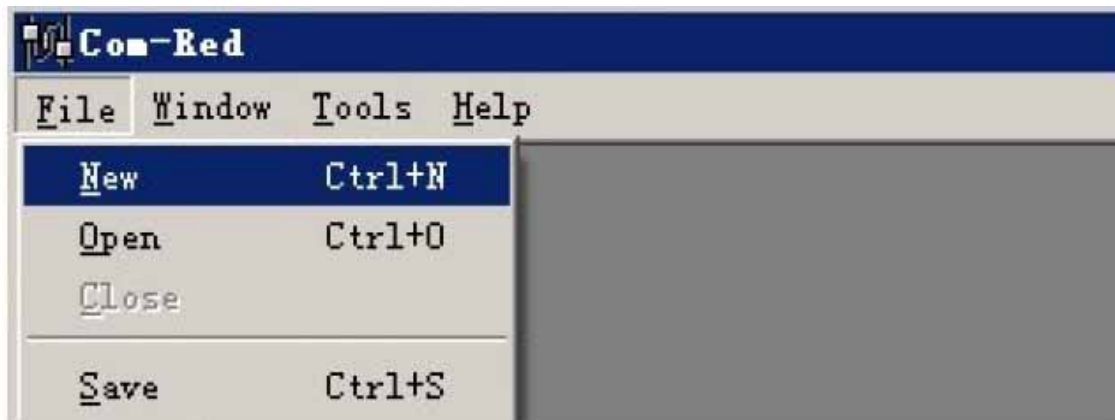


2. Install VSPM

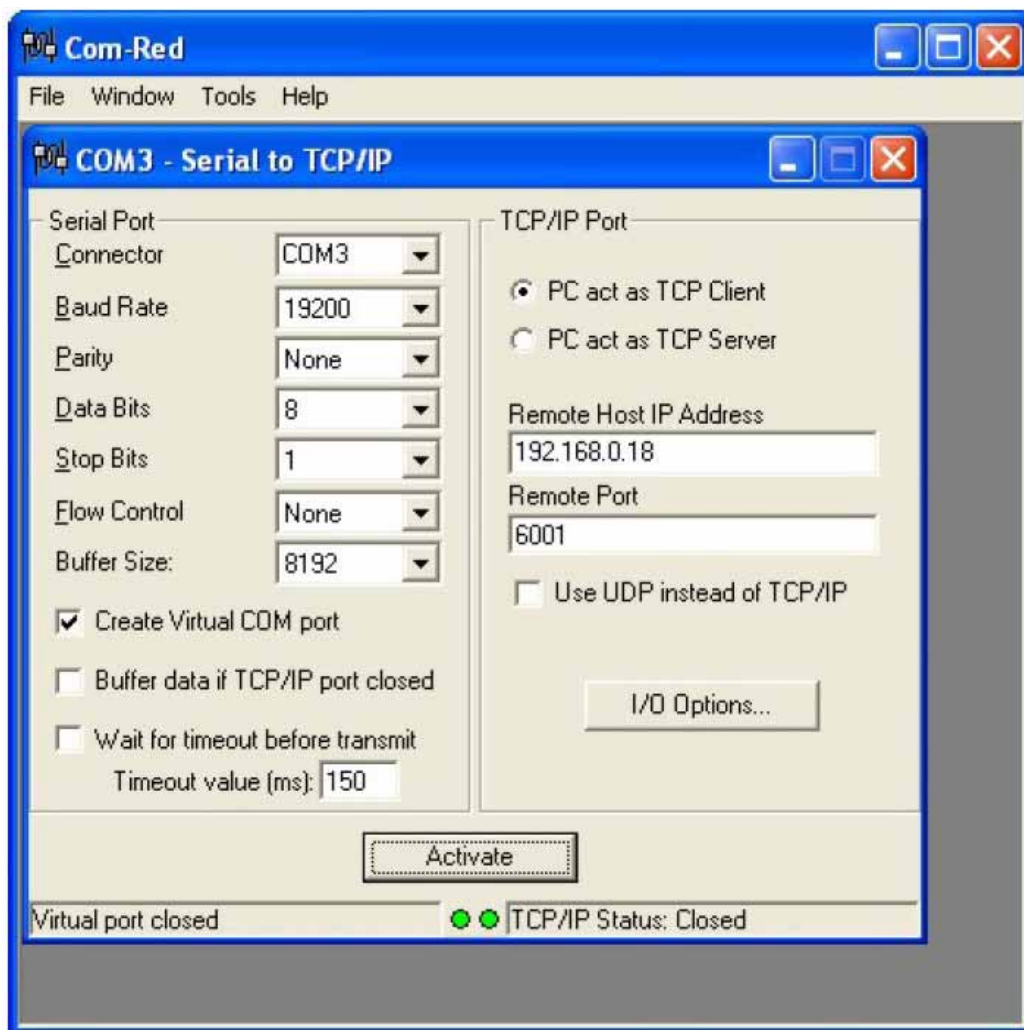


COM-Redirecter.EXE

3. Open VSPM,
Add virtual COM.



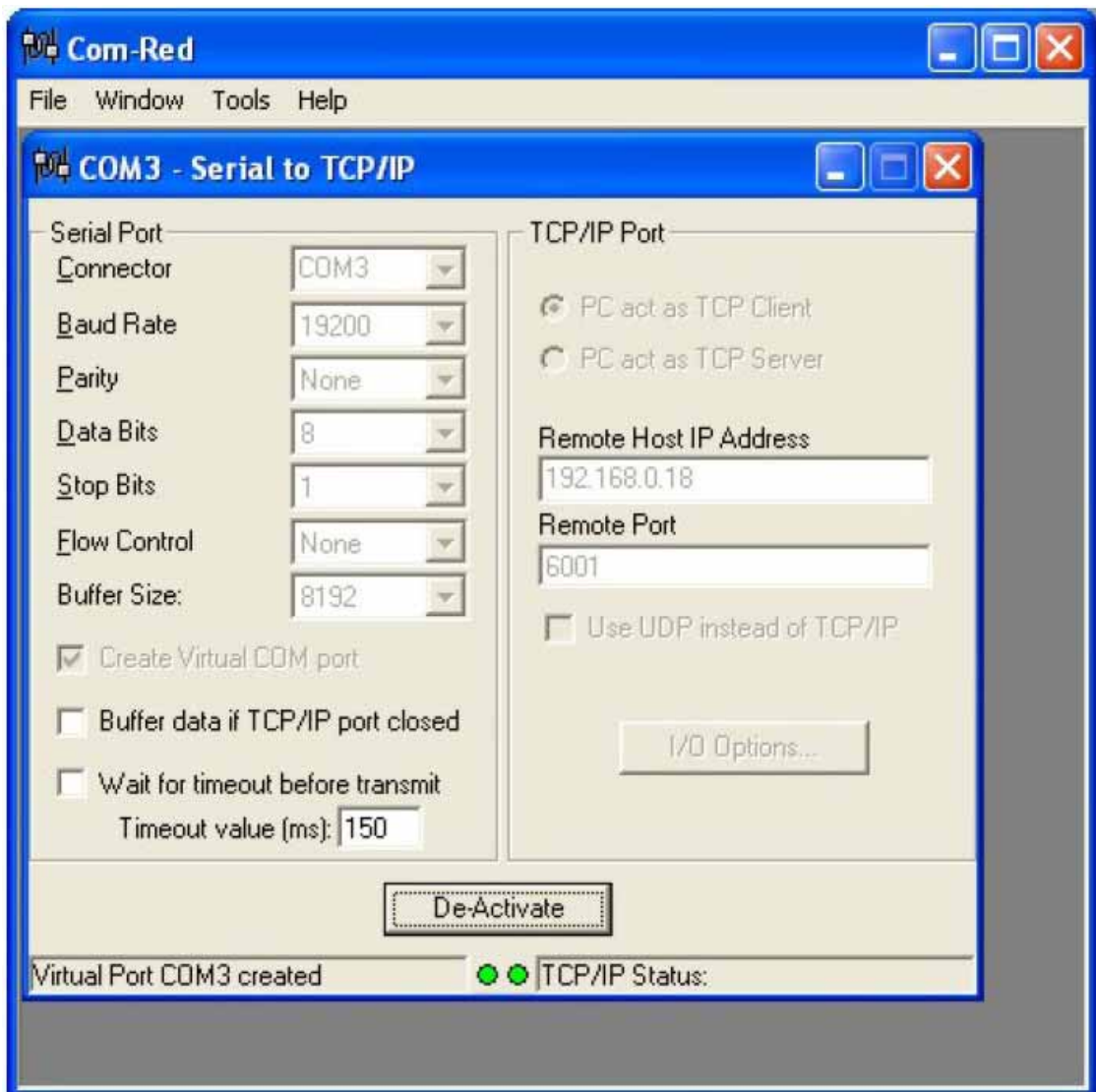
4. Setup as the follow pictures, you need to notice COM port, bond rate and work mode of PC, then click Activate.



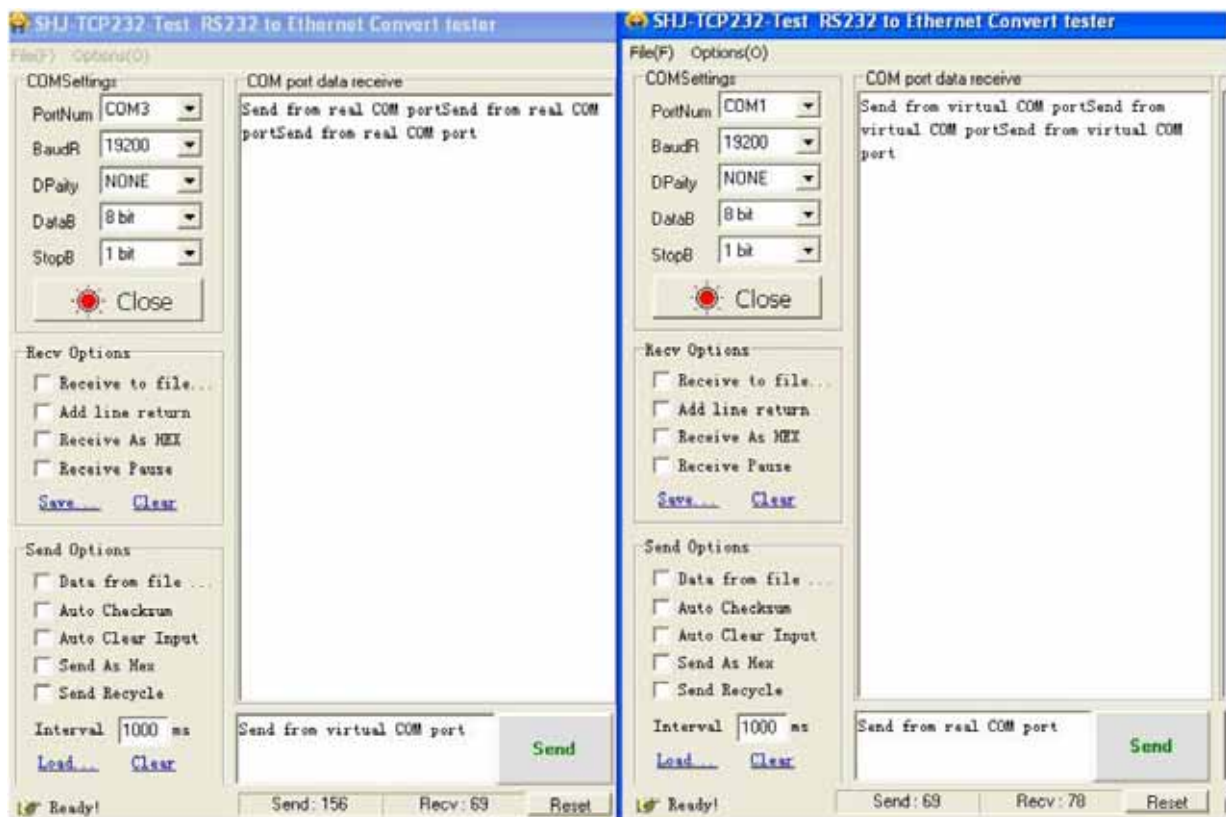
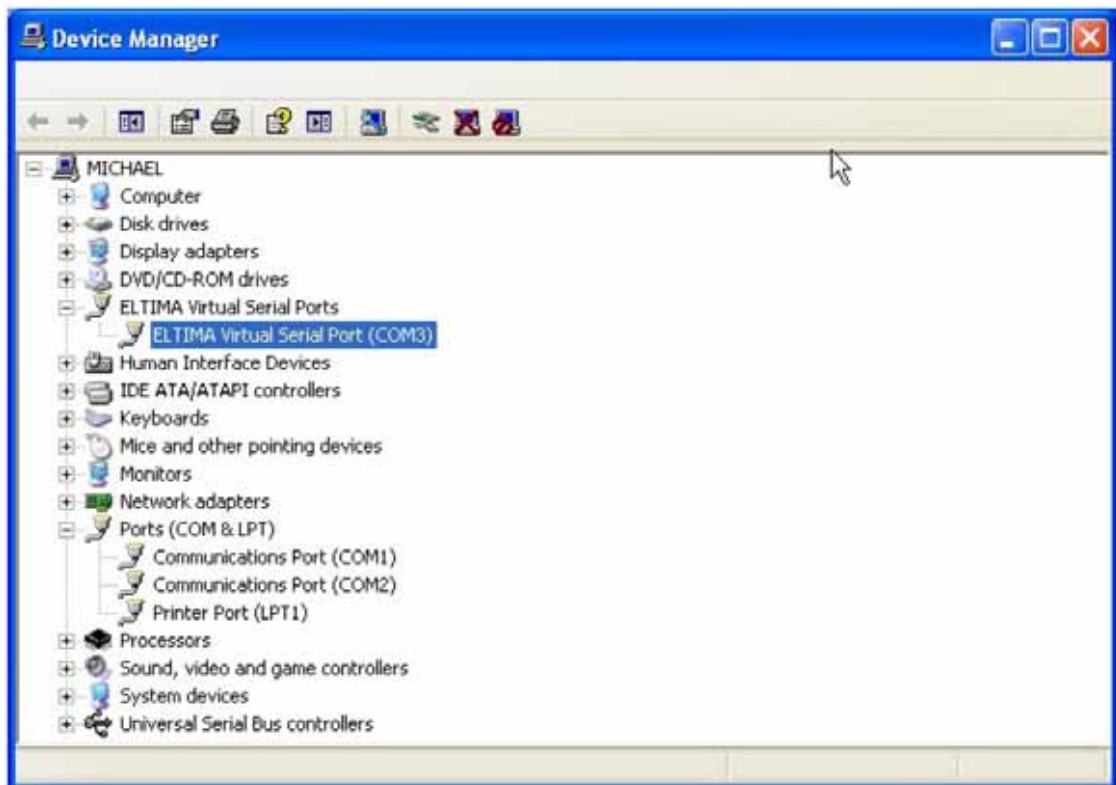
5. After Activate click, a Virtual COM port COM3, will be created, COM3 will receive data from TCPIP socket, and send data to COM3 will convert to TCPIP socket data to remote Equipment.

If create failed, please notice to see error notice and log, when use Virtual COM Port, you should close other software who use the same TCPIP port.

The success picture as follow:

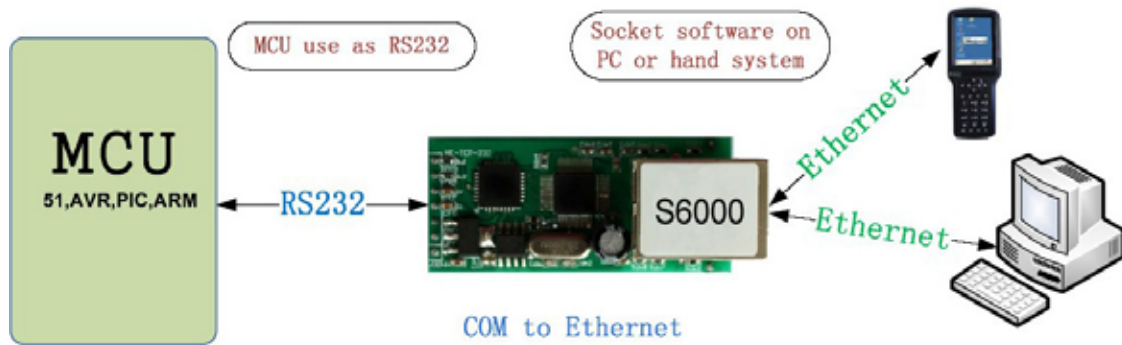


At this point, you can use your equipment as an ordinary serial port, and operate of local virtual serial port will converted to operation of the remote module RS232. The figure is show send data between the two serial port.



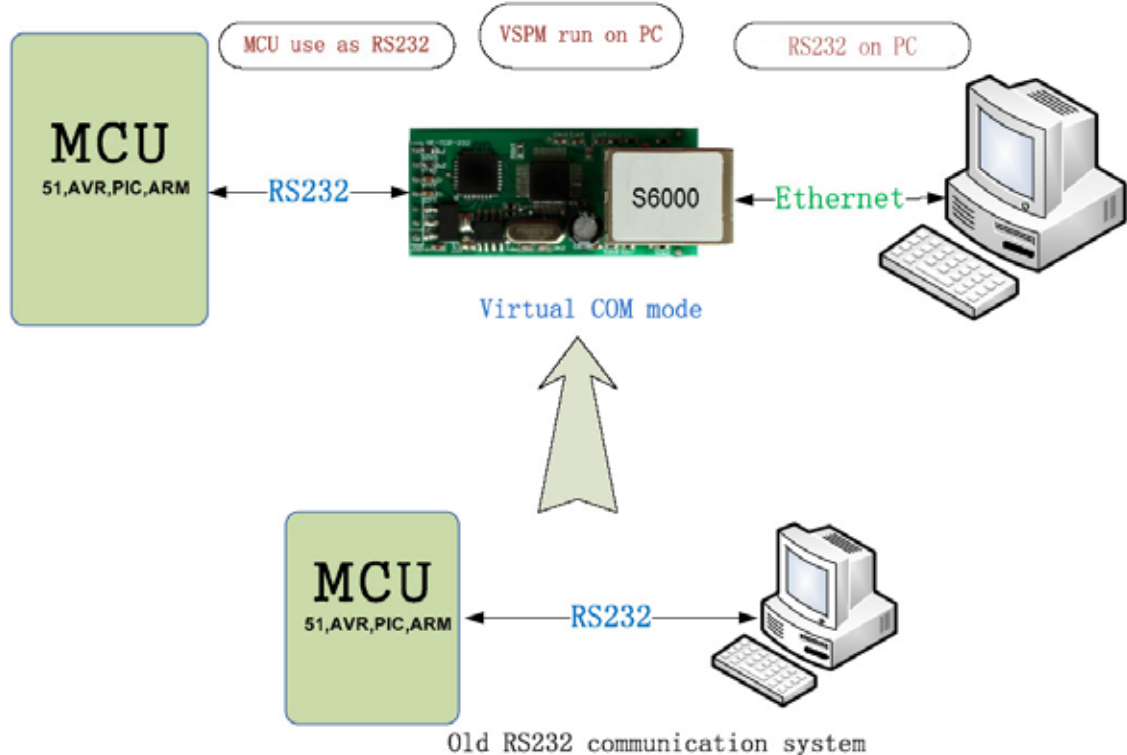
6. Apps

6.1 COM<->TCP/UDP<->server

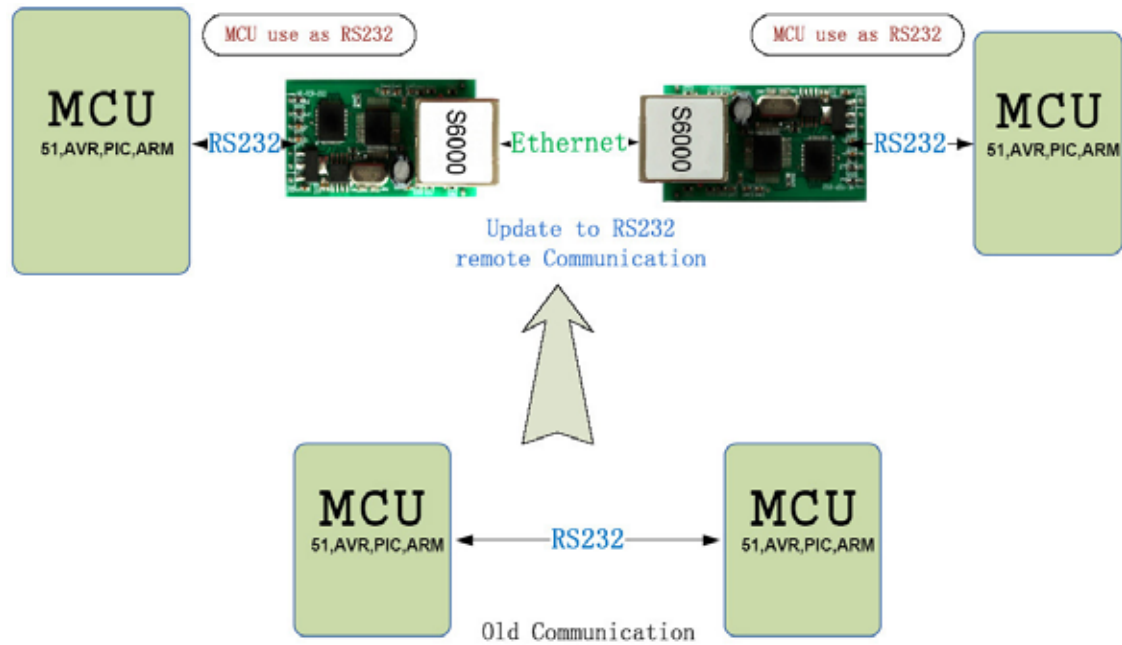


6.2 Virtual COM

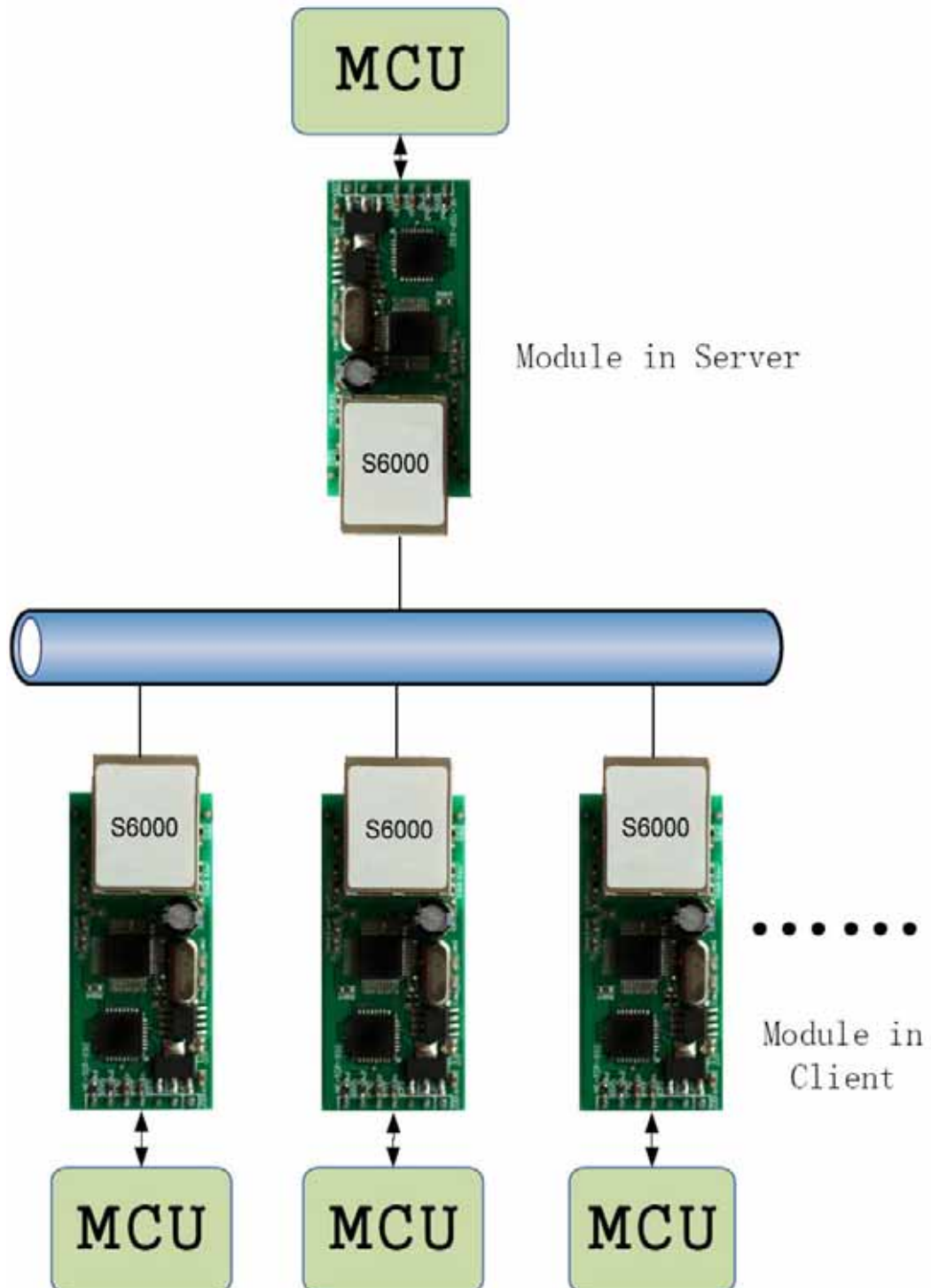
Install VSPM software. The COM like installed in the pc.



6.3 COM <-> TCP/UDP <-> COM



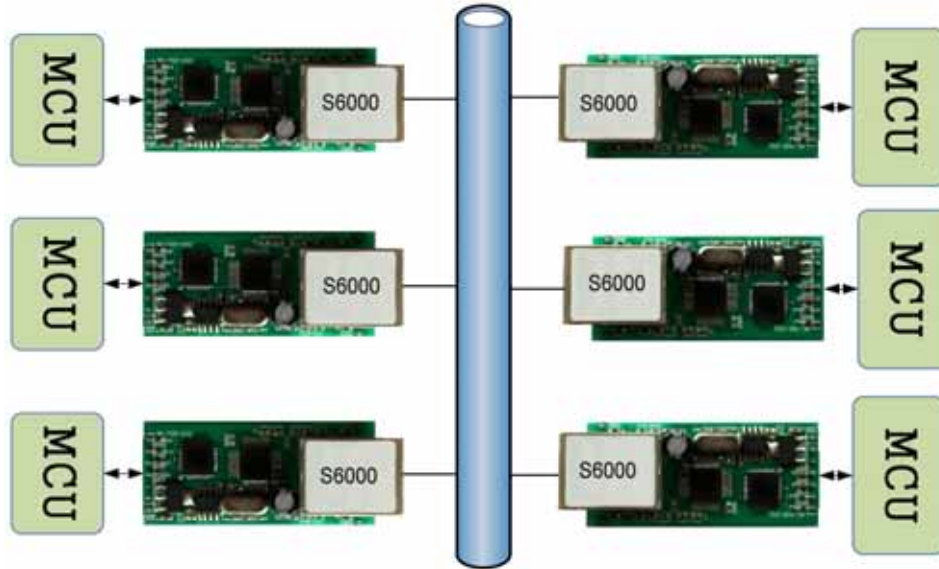
6.4 many COM <-> UDP server <-> COM



When the UDP server COM transfer data to one of the many COM, the last COM that transferred data will be choose.

6.5 COM<-> TCP/UDP<->proxy server <->TCP/UDP<->COM

You can use a proxy server to treat the data form one module to other, or just use you MCU to control the module IP and destination IP Real-time. The method is pull CFG PIN to GND, and send the new configuration data, then pull CFG pin to VCC to use new settings.



6.6 COM <-> TCP/UDP <-> server

