Ethernet TCP/IP Converter RS-232/485/422 Device Server

User Manual

Version 4.1.0, Jun 2015

Statement

Agreement

As the product version upgrades or other reasons, this document is subject to change without notice. Unless other agreement, this document only as a guide to use. All statement, information and suggestion in this document, without warranty of any kind, either expressed or implied.

Revision History

Version No.	Date	Reason
V1.0.0	2011-07	Creating Documents
V3.1.0	2011-11	Modify Documents
V3.2.0	2014-10	Modify Documents
V4.1.0	2015-06	Modify Documents

Notes

In reading this manual, please pay attention to the following symbols,

 : Information necessary to explain.

 : Special attention.

Content

Chapter 1 Summarize

1.1 Introduction

The serial device server is designed to make your serial devices internet ready instantly. It provides 1 port RS232/485/422 (RS232, DB9M; RS485/422, 5 bit terminal block) and 1 port 10/100Base-T(X). It makes them ideal choice for connecting decentral serial devices and Host computer to an IP based Ethernet, making it easily and conveniently for your management. Its software can be setting and updating by serial program group in the application. It supports TCP, UDP, ARP, ICMP, DHCP and Windows Native COM, Network interrupt recovery connection function.

What's more, serial devices server provides powerful management configuration tools based on Windows, guiding users' configuration of the devices step by step. All configurations can be done by network and serial port, supporting communication across gateway and router. In addition, it allows users to configurate flexibly IP address, Server or Client mode, size of packet, etc.

Serial device sever is designed with EMC protection, and power supply have overcurrent and overvoltage protection. These make it working stably in hazardous environment.

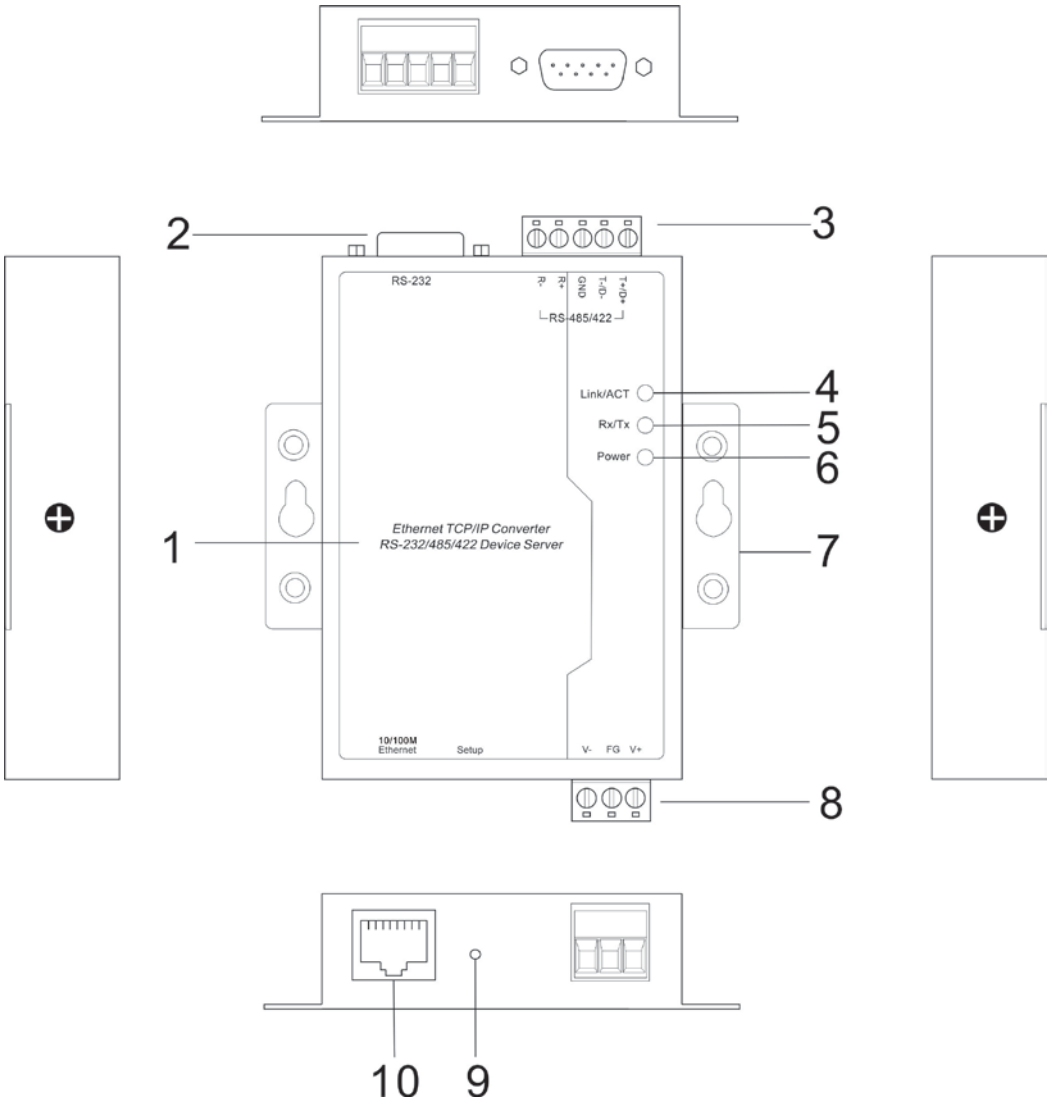
Easy wall and DIN-Rail mounting.

1.2 Products Features

- Adopt 32 bit ARM processor
- Support 3-in-1 RS-232/RS-485/RS-422 serial interface
- Support 10/100M Base-T(X)
- Support 300bps-115.2Kbps
- Support TCP, UDP, ARP, ICMP, HTTP and DHCP protocol
- Support across gateway, router communication
- Support standard TCP/IP SOCKET
- Support Windows serial interface driver mode
- Support Virtual serial driver access and auto connect once the network disconnect
- Support network and serial interface configuration mode
- Low consumption design
- Support DIN-Rail or wall mounting installation
- Working temperature: -40～75℃

Chapter 2 Hardware description

2.1 Panel description

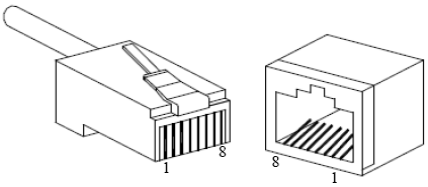


1. Equipment information
2. RS-232 serial interface(DB9M)
3. RS-485/422 serial interface (5 bit terminal block)
4. Ethernet port LINK/ACT LED indicator
5. Serial data receiving / transmitting indicator
6. Power indicator
7. Hangers
8. Power input terminal block
9. Restore factory settings
10. 10/100BaseT(X) (RJ45) ports

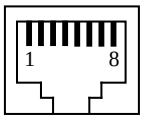
2.2 Interface description

2.2.1 10/100Base-T(X) Ethernet port

The 10/100BaseT(X) ports located on Serial device front panel. The pin of RJ45 port display as below. Connect by UTP or STP. The connect distance is not more than 100m. 100Mbps is used 120Ω of UTP, 10Mbps is used 120Ω of UTP 3, 4, 5.



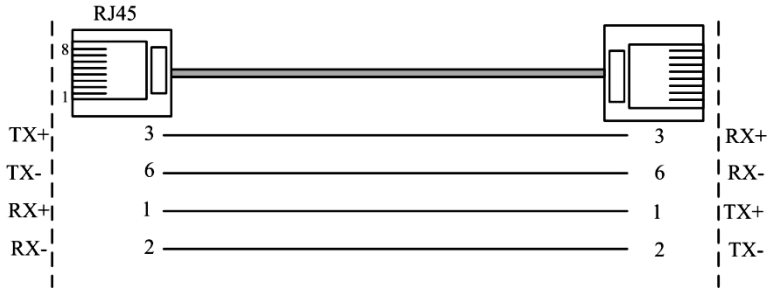
RJ45 port support automatic MDI/MDI-X operation. It connects the PC, Server, Converter and HUB by straight–though cable wiring. Pin 1, 2, 3, 6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10Base-T is used in MDI/MDI-X, the definition of Pin in the table as below.



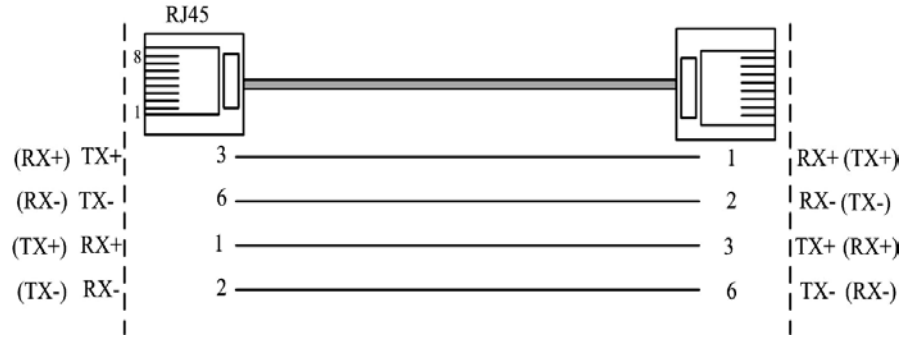
pin	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

Note：“TX±” transmit data±, “RX±” receive data±, “—”not use

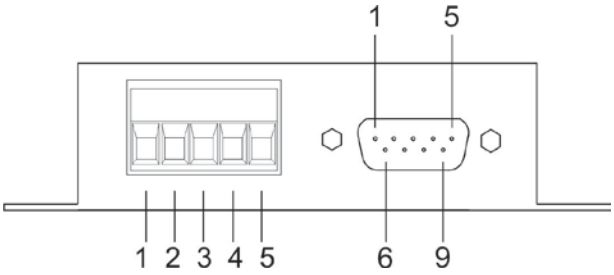
MDI（**straight-through cable**）：



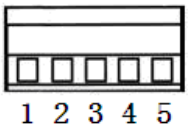
MDI-X（**Cross over cable**）：



2.2.2 RS-232/485/422 Serial interface

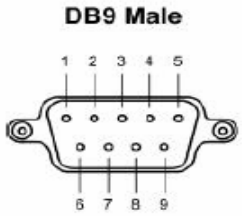


RS-485/422 side is 5 bit terminal block. The PIN definition is as follows:



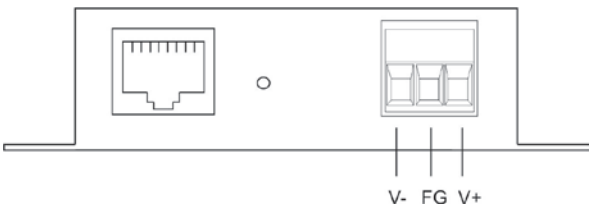
serial number	1	2	3	4	5
RS-422	T+(A)	T-(B)	GND	R+(A)	R-(B)
RS-485	D+	D-	GND		

RS-232 side is DB9 male. The PIN definition is as follows:



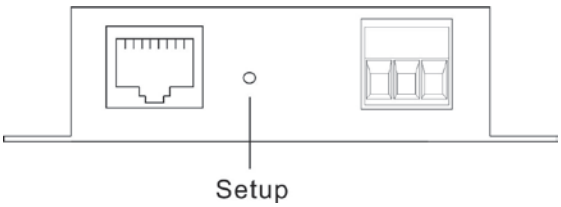
Serial number	1	2	3	4	5	6	7	8	9
Name	NC	RxD	TxD	DTR	GND	DSR	RTS	CTS	NC

2.3 Power supply description



9～48VDC wide voltage power input, the consumption is about 1.48W@9VDC.

2.4 Factory Default



Setup: restore the factory settings button, press and hold the SETUP button, disconnect the power supply and then give the device to power up, continue for about 5 seconds to restore the factory settings.

2.5 LED Indicator

Serial device server has 3 LED Indicator, include Power, Link/ACT, Rx/Tx, the meaning is as follows:

Power input steadily: Power LED bright all along

Network connect naturally: Link/ACT LED bright all along

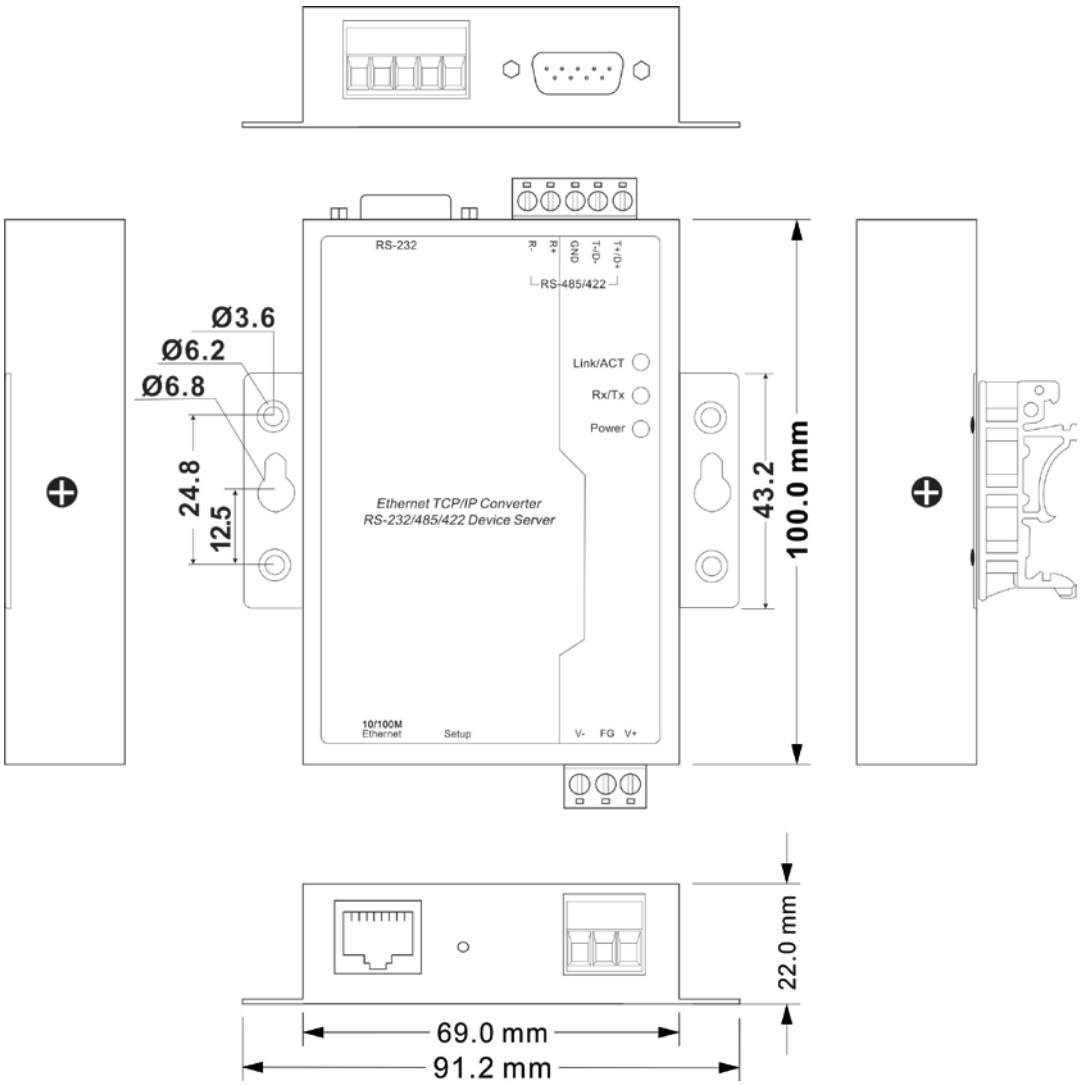
Serial interface has data receive: Rx/Tx LED blinking

Chapter 3 Appearance dimension

3.1 Appearance

3.2 Dimension

Unit：mm



Chapter 4 Performance and parameter

4.1 Specification

LAN：

- Standard: 10Base-T，100Base-TX
- Protocol: Support TCP, UDP, APR, ICMP and DHCP protocol
- Signal: Rx+,Rx-,Tx+,Tx-
- Speed: 10/100Mbps
- Working: Full-duplex and half-duplex
- Working mode: Support Server, UDP and Client
- Transmission; 100m
- Interface Memory: <16K
- Protection: 1.5KV ESD
- Connector: RJ45

Serial interface:

- Serial interface number: 1 port RS-232 or1 port RS-422/485
- RS-232 signal: TXD,RXD,RTS,CTS,DTR,DSR,GND
- RS-422 signal: T+(A), T-(B), R+(A), R-(B), GND
- RS-485 signal: D+(A), D-(B), GND
- Parity bit: None, Even, Odd, Space, Mark
- Data bit: 5bit, 6bit, 7bit, 8bit
- Stop bit: 1bit, 2bit
- Baud rate: 300bps～115200bps
- Flow control: RTS/CTS or XON/XOFF
- Direction control: RS485 side adopt ADDC technology, auto text and control data transfer direction
- Loading: RS-485/422 side support 32 nodes (customize 128 nodes) loopback
- Transmission: RS-485/422 side 1200M,
  RS-232 port 15M
- Interface protection: 1500W surge protection, 15KV static protection
- Interface type: RS-232 side DB9 male
  RS-485/422 side 5 bit terminal block

Power supply:

- Power input: 9~48VDC
- Consumption: Approx 1.47W

Environment:

- Working temperature: -40℃~75℃
- Storage temperature:-40℃~85℃
- Humidity: Relative humidity 5%~95%（no condensation）

Structure:

- Installation: Wall mounting or DIN-Rail
- Shell: IP30 protection, metal shell
- Color: Black and Blue
- L×W×H: 100mm×69mm×22mm
- Weight: 240g

Standard

- EMI: FCC Part 15，CISPR (EN55022) class A

- EMS: EN 61000-4-2 (ESD) Level 4
- Shock: IEC 60068-2-27
- Free fall: IEC 60068-2-32
- Vibration: IEC 60068-2-6

Warranty

- Warranty time: 5 years

Certificates

- CE, FCC, RoHS, UL508 (pending)

4.2 Packing List

Please check the packaging and accessories by your first using. Please inform us or our distributor if your equipments have been damaged or lost any accessories, we will try our best to satisfy you.

Item	Quality
Serial device server	1PCS
Straight-through cable	1PCS
Power adapter	1PCS
CD	1PCS

Chapter 5 Web management function

Before configuration serial device server, please make sure your PC have installed necessary software and configure the network reasonable.

The lowest requirements of user PC is as follows:

- Installation operation system（as Windows XP/2000, Windows 7 etc）
- Installation Ethernet card
- Install Web explorer (IE6.0 or higher version)
- Installation and startup TCP/IP protocol

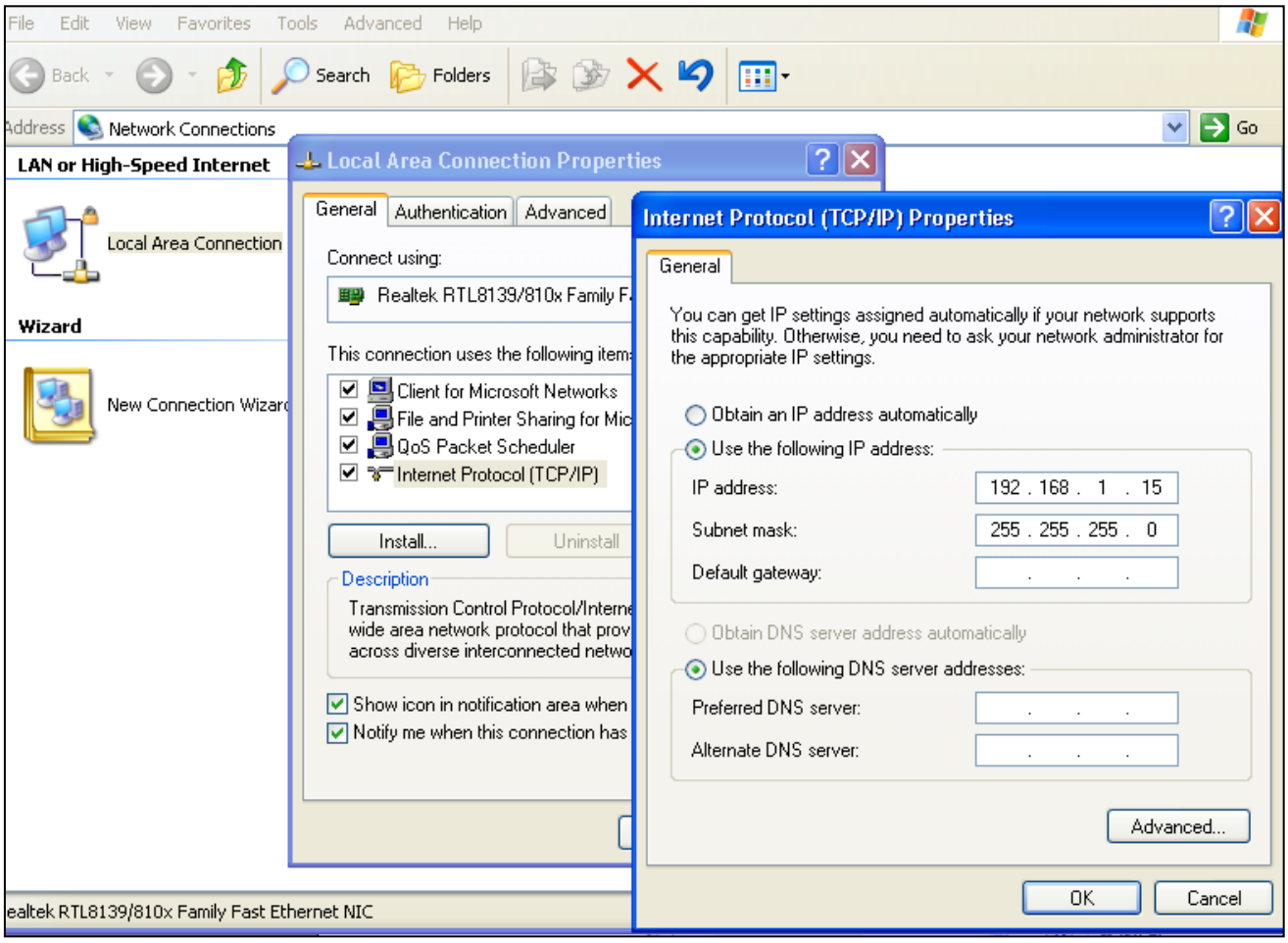
5.1 Network settings

Serial device server default IP address: 192.168.1.254, subnet mask: 255.255.255.0. When access serial device server through WEB browser. The IP address of the serial device server and PC must be in the same Local Area network. You can modify PC's or device's IP address to make sure that they are in the same Local Area Network. Operating process can follow method 1 or method 2 as below:

Method 1: Modify PC's IP address.

- Click Start->Control panel->network connections->Local area Connection->Properties->Internet protocol （TCP/IP）Setting PC's IP address: 192.168.1.X（X is expect 254, from 2 to 253）.
- Click "OK", IP address modified successful.

The Windows system operation interface is as figure 5.1.1:



（Figure 5.1.1）

Method 2: Modify device's address through our VSP manager software

- Install the VSP manager software on the PC.
- Enter into VSP Manager management interface, click "Search" to search the serial device server.
- After searched the serial device server, move the mouse to the serial device server, click right key, modify the device's IP address, make sure serial device server and PC must be in the same Local Area network.

5.2 Function menu

Main menu includes 3 parts: Device information, Serial interface setting and system tools, main content is each function of serial device server, we will introduce it and setting method articulating in this section.

Menu	Page layout	Function
Device information	Basic information	Display device name, description, Module, Serial No., Hardware Ver, Firmware Ver and MAC address etc
	Network information	Display IP Address, subnet mask, gateway address, DNS etc
Serial Server	System Settings	System Work Mode: Low-Power and High -performance
	COM setting	Serial Parameter setting and working mode setting
	AT command settings	AT Command Mode Settings: 1. I / O port trigger; 2. CtrlBreak trigger; 3. Character strings trigger (Hex)
	COM information	Statistics Information and Link Information
System tools	Login Settings	Login name and password
	Network & Reboot	Network setting and Device Reboot
	System Identification	Modify Basic information: Module, Name, Description， serial NO. and Contact information.
	System File Update	Factory Default, Update Configuration File from Local PC and Upgrade Firmware from Local PC
	Logout	System Logout

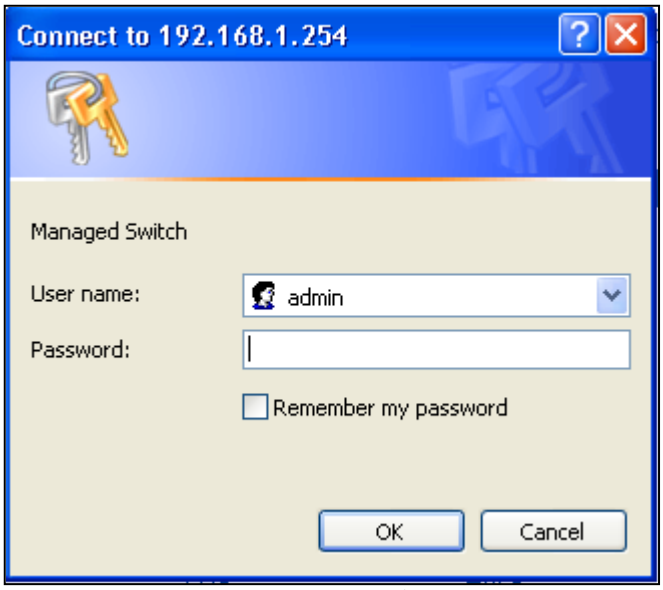
5.3 Log in Web interface

Before access serial device server through IE browser, please make sure PC and device in the same Local Area Network or can access through router.

Operation method:

1. Click IE with right key, click "Properties", empty temporarily files and history record.

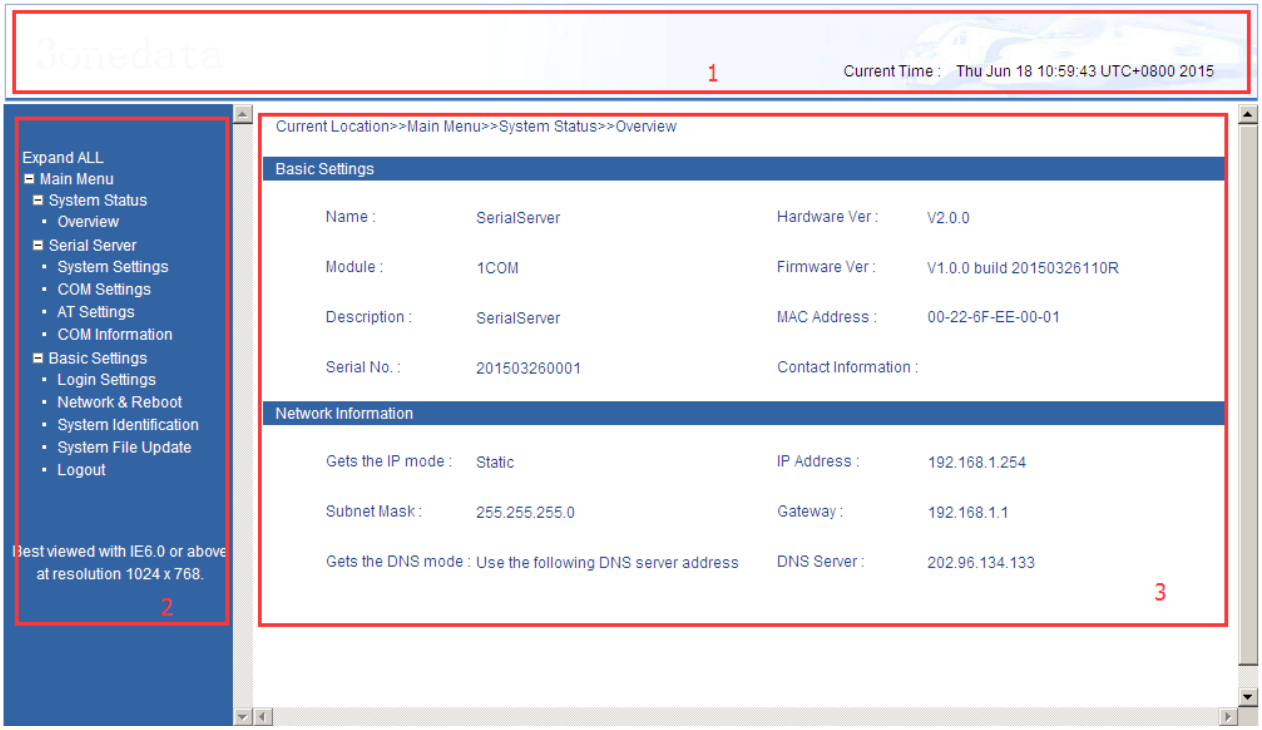
2. Open IE, input the IP address of the serial device server in the address bar, click "Enter", enter into user name and password interface as figure 5.3.1.



（Figure 5.3.1）

3. Input user name and password, “Enter”, enter into serial device server interface as figure 5.3.2.

Web setting interface divide as: 1. Title area 2. Menu bar 3. Setting area. Click menu of the mean bar, can enter into relevant interface, setting area display the status of the serial device server and can configuration.

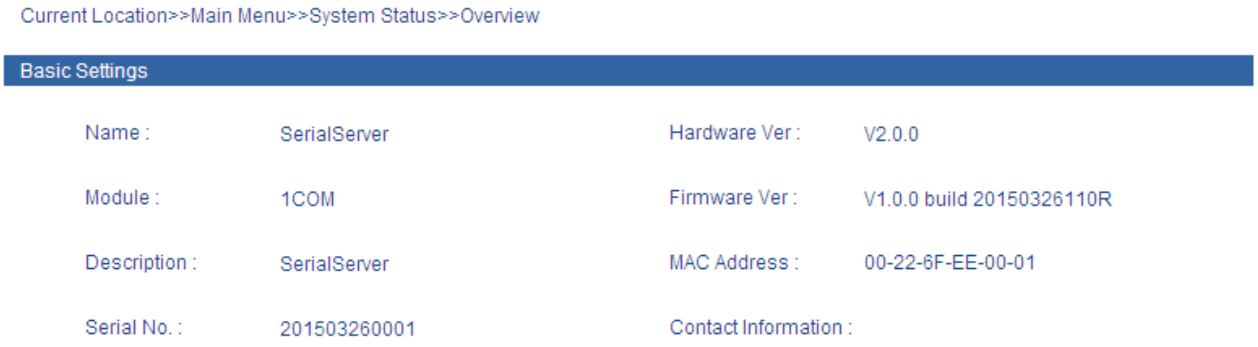


（Figure 5.3.2）

If user name or password input incorrectly 3 times continuously, you must access afresh.

5.3.1 Device information.

Device information included device name, device description, hardware version, software version, MAC address as figure 5.3.3.

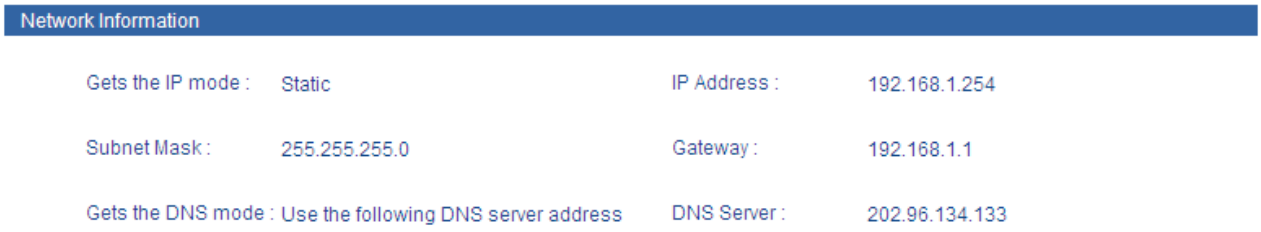


（Figure 5.3.3）

Item	Meaning
Module	Network identification
Name	Serial number
Description	The description of device's features, like as used key place.
Contact information	The contact information of person when maintenance the device, it can be configured in system information.
MAC address	Hardware address, 48bits(6 bytes,), 16 hexadecimal, it is unique
Hardware version	The current hardware version information, please note the limit of software version to hardware version
Firmware version	The current software's version information, upgrade software version will have more function

5.3.2 Network information

Device address setting supports 2 modes，DHCP and static IP address, When opening DHCP function，IP address of the device can be obtained by software VSP manager software. If it is needed to connect Domain Name System, please fill in available gateway and DNS address. As figure 5.3.4.



（Figure 5.3.4）

IP address

IP address is a 32 bits length address provided the device that connect to the Internet. IP address has 2 filed: net-id and host-id，IP address can set in static IP or DHCP.

Subnet Mask

Mask is an IP address corresponding 32 bit number, it has 1 and 0. Mask can divide IP address into 2 parts: subnet addresses and host computer addresses. 1 bit in IP address and mask correspond subnet address.

Default gateway

The default gateway in the Host computer usually called Default route. Default route is the route chosen by the router when destination address of IP packet cannot find the existence of other routes. All packets of destination address not in router's routing table will use the default route.

DNS address

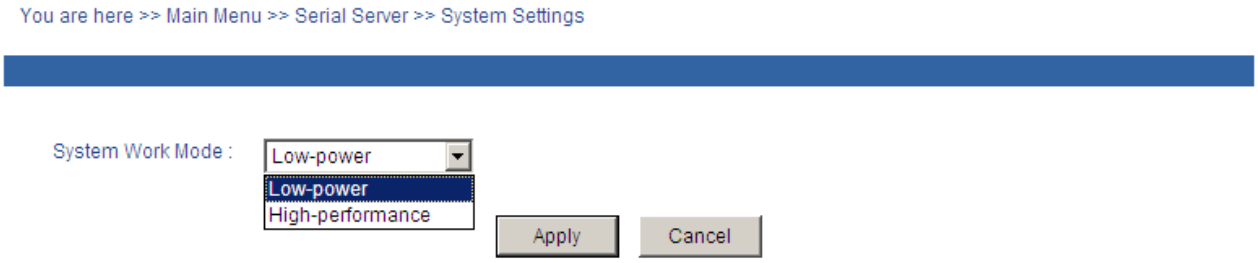
DNS full name is Domain Name Server, the function is easy to remember the DNS. It resolves to the IP address internet can identify. If our devices need to visit some Host device, it needs to use this server to resolve an IP address.

:

If it needs to set DHCP “automatically obtain IP address”, please ensure DHCP Server is already in the network and can obtain IP address successfully. After “automatically obtain IP address”, it is need to use software VSP manager software to search the device and obtain the IP address of the device.

5.4 System Setting

The serial device server support low-Power and high-performance working mode, as figure 5.4.1.



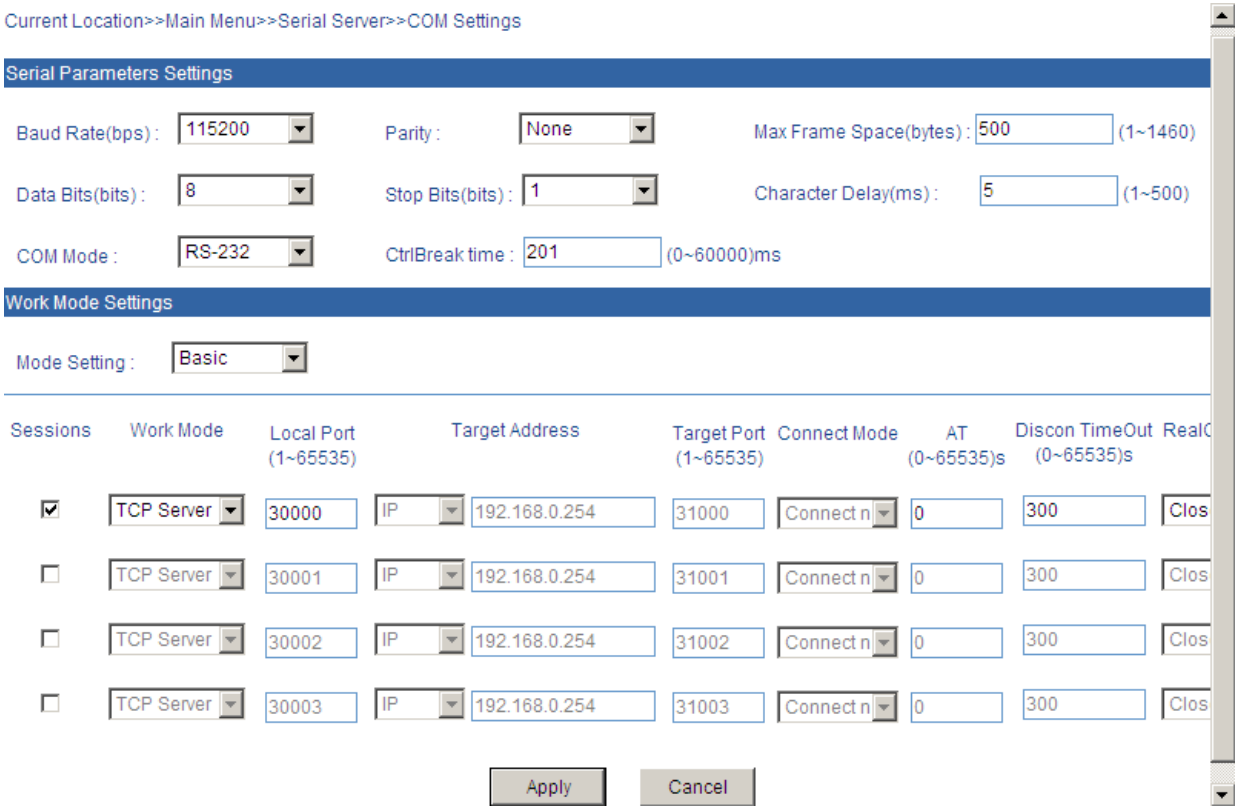
（Figure 5.4.1）

5.5 Serial port parameters setting

Serial interface setting menu:

Serial interface setting menu	Data optional	Function Description
COM Mode	RS-232 full duplex/RS-422 full duplex/RS-485 half duplex	Serial work mode
Baud rate（bps）	300-115200（10 baud rate optional）	Baud rate choice
Parity bits	None, Even, Odd, Mark, Space	Checkout choice
Data bits（bits）	5,6,7,8	The parameter of serial
Stop bits(bits)	1, 2	The last of the data package
Max Frame Space (bytes)	1-1460	The length of frame from serial data to Ethernet data.
Character Delay（ms）	1-500	The time space from serial data to Ethernet data
CtrlBreak default output time（ms）	0-60000	

Enter into device's Web interface, click [Serial Setting], choose the required configuration in the corresponding drop-down menu. Serial settings Web interface as figure 5.5.1. When serial device server communicates with serial interface device, device's setting is as follows:



（Figure 5.5）

Some items related with serial settings： [Serial Mode]、[Baud Rate]、[Parity]、[Data Bits]、[Stop bits]、[Max Frame Space] and [Character Delay]，CtrlBreak Default Output Time. The meaning of these configuration options are explained below,

COM Mode：RS-232 full duplex/RS-422 full duplex/RS-485 half duplex

Baud rate: It is a parameter to check the communication speed. It shows to transfer how many bits in 1 second. For example, 300 baud rate means have 300 bits transferred in 1 second.

Parity bits: It is a simple method to checkout fault in serial communication, have 4 types: Even, Odd, Mark, Space

Data bits: It is a parameter to check the actual data bits in communication. When PC send a Packet, actual data is not 8 bits, the standard is 5, 6, 7, 8.

Stop bits: The last bit of the single Packet, Typical bit is 1, 1.5 and 2. device's stop bit is 1, 2.

Max frames: The frame length that serial interface data convert into Ethernet data, within the range of setting time, it forwards when data is equal to or longer than the setting frames. Available setting value ranged from1 to 1460.

Character Delay: The wait time when serial interface send data do not 1 data frames. If up to this time and do not have data, then send automatic.

CtrlBreak default output time: Setting CtrlBreak default output time.

5.6 Work mode settings

Work mode settings menu:

Configuration menu	Data option		Description
Sessions	1-4		
Working mode	Basic mode	TCP Client TCP Server UDP TcpAuto	Choice serial port working mode, default is not open
	Advanced mode	TCP Server	
		UDP	
Local port	1-65535		COM1 default is 30000，COM4 default is 30003, between them, add step by step
Target address	Default is192.168.0.254		
Target port	1-65535		COM1 default is 31000，COM4 default is 31003, between them, add step by step
Connect mode	Connect immediately/data trigger		Default is connect immediately
AT	0-65535 s		Default is 0
Disconnect Timeout	0-65535 s		Default is 300
RealCom	Open/Close		Default is Close

Sessions：Each serial port of serial device servers can support 1-4 sessions. It means serial port of serial device server send the received data to Ethernet through socket. More than one of the sessions means serial port of serial device server sends the received data to Ethernet through more than one socket. Sessions enable to use by checking the corresponding box.

Basic mode

1. TCP client

As TCP Client side, serial device server will connect forwardly to TCP/IP network equipment, such as PC. It need to setup to tell serial device server to connect which network address and TCP port number when conditions is matched. After creating socket, serial device server will sent the data received from each serial port through socket On the contrary, the data received from socket will be sent to the corresponding serial port.

TCP Client setting option: [Target address], [Target port], [Connect mode] , [AT] and [Discon timeout]

The explanation of these setting is as follows

[Local port]

The configuration is the same TCP server, default is 0~65535.

[Target address]

The IP address or domain name address that device will connect, both of them can correspond the host computer address on the Internet

[Target port]

The TCP port number that serial device server will connect

[Connect mode]

Connection mode has 2 types: Immediately and Data trigger

Immediately: When serial device server has power supply, it will connect immediately, if connection cut off, it will connect immediately.

Data trigger: Once serial device server receive the data, it will connect immediately.

[AT]

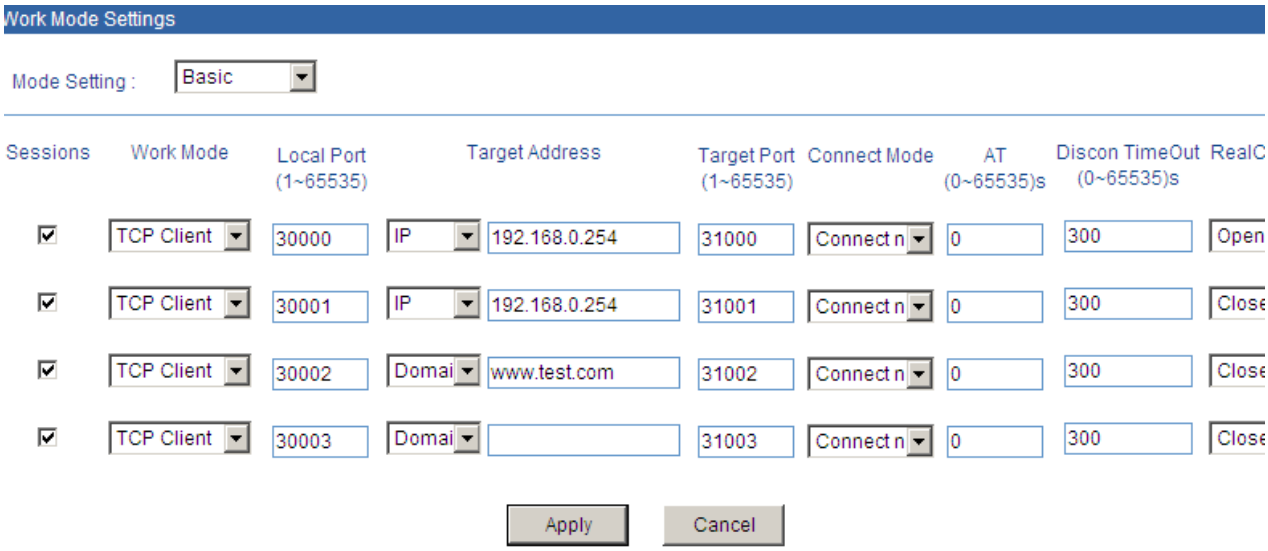
Serial device server send the AT package accord the setting time, if no response continue 3 times, will be cut off.

If set “0” meaning this function closed, the range is 0-65535 second, default is 0 second.

[Disconnect Timeout]

Setting the vacancy time for connection cut off automatic, if there do not have data transfer, the connection will cut off. If set “0”, means do not care how much time vacancy, device do not cut off voluntary. The range is 1-65535s. Default is 300s

The figure below is the configuration interface of TCP Client Mode. Session 1 is setting to local address available for router. “192.168.0.254”，the “Target Port” connected to serial port is host computer 192.168.0.254” 31000 port, Connection mode is ‘Connect now’, ‘Discount timeout’ is 300 seconds, please pay attention to pure TCP Client、TCP Server、UDP or TCPAuto mode. Please close RealCom. Session 3 is setting to Internet address available for router “www.test.com”（the choice this time is DNS）the “Target Port” connected to serial port is host computer ”www.test.com” 31002 port，Connection mode is Immediately, Disconnect timeout is 300 seconds, click “Apply’, setting successful.



（Figure 5.6.1）

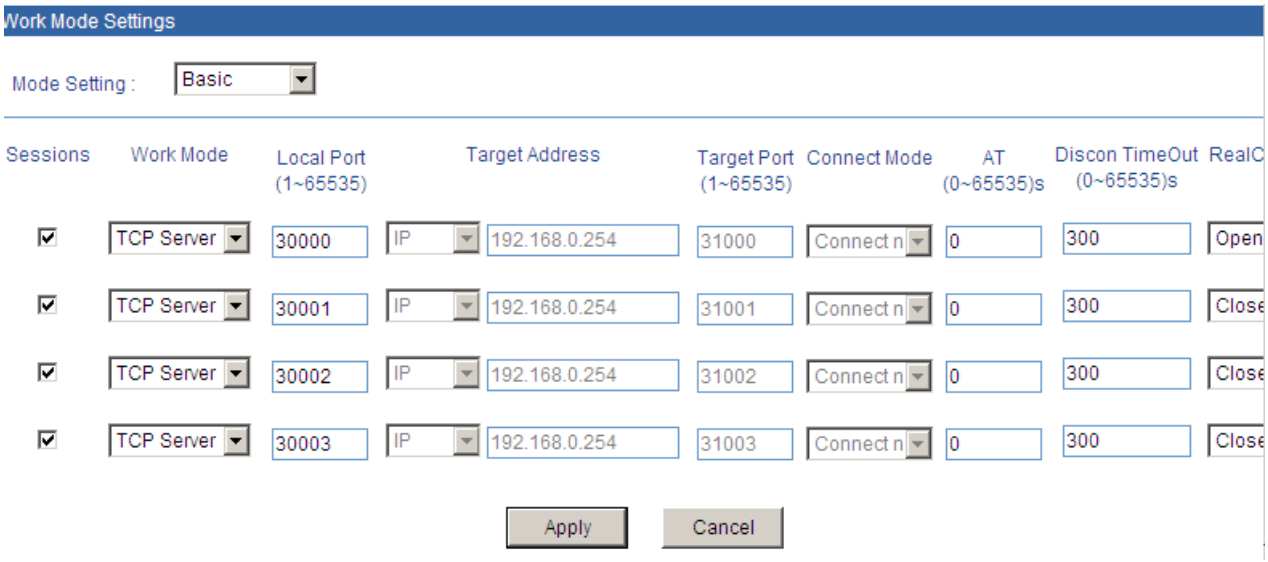
2. TCP server

TCP Server, Passive connect, one pivotal parameter is [Local port], have relationship with other setting, need combine setting.

[Local port]

Serial device server provide TCP port can be connect by other TCP/IP node, the TCP port have the relationship with the device's relevant serial interface.

The figure as follows is TCP Server setting interface, Session 1 set local port is 30000, external TCP port connect serial device server through this port. Connection disconnect timeout is 300 second. Click "Apply", setting successful as figure 5.6.2



（Figure 5.6.2）

3．UDP

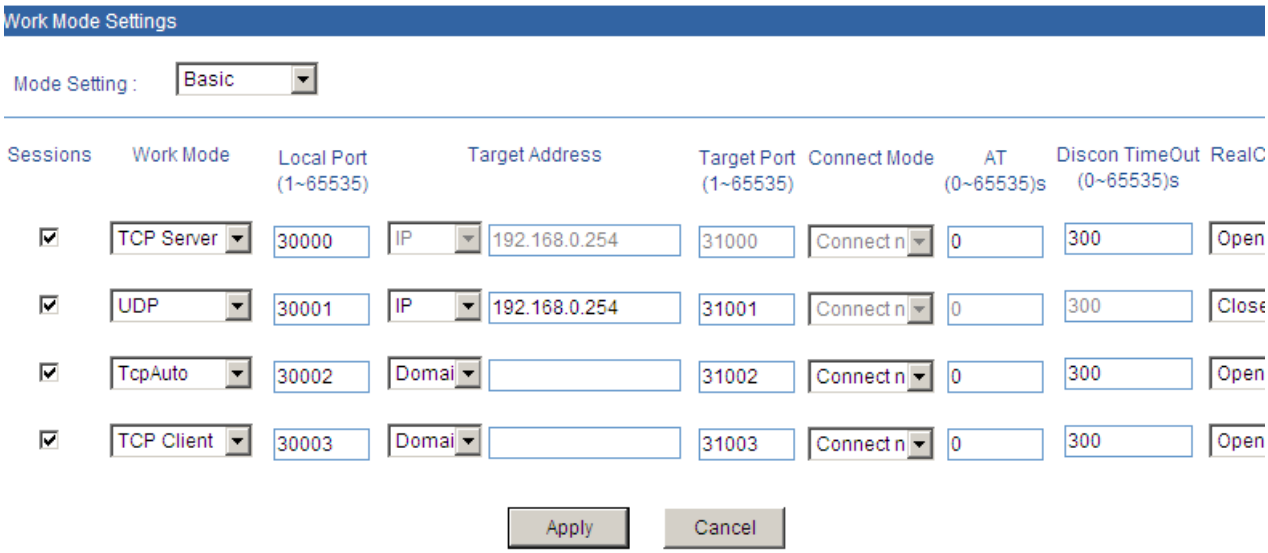
Under the UDP work mode. serial device server is server and also client, the relevant setting is "Local port", "target address" and "Target port". It can support point to point and multicast UDP, setting method is the same as TCP.

4．TcpAuto

In this Mode, serial device server can act as server or client. Before setting this Mode, please ensure related parameters are correct when you turn on the server mode, client mode is automatically disconnected.

5．RealCom

RealCom Mode support TCP Server、UDP and TcpAuto these 3 types，Choose "open" or "close" to enable this function under RealCom. After opening RealCom, users can make connection through Windows Hyper Terminal. Generally RealCom need to open.

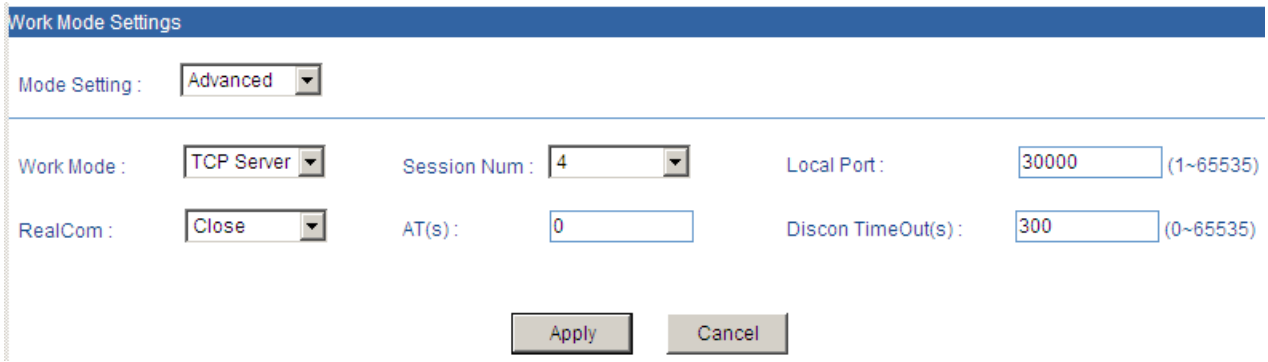


（Figure 5.6.3）

Advanced mode

1. TCP server

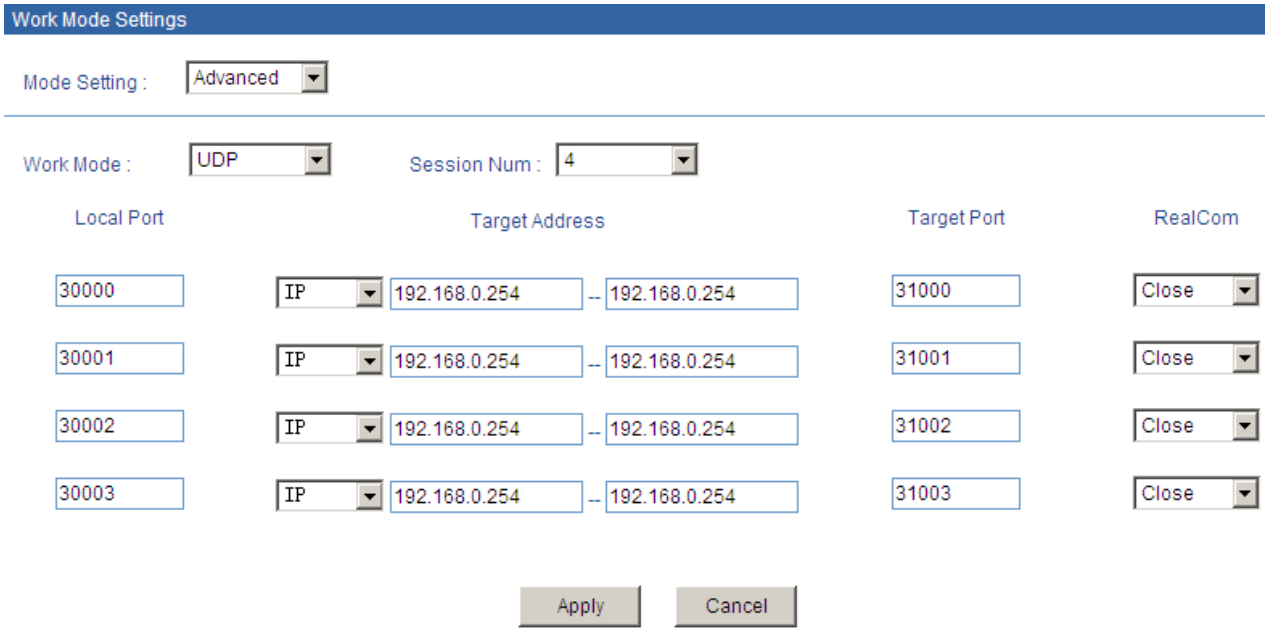
Under this mode, the serial device server is server, can choice 0-4 channel connection at the same time, and configuration mode is the same based mode. Figure 5.6.4 as follows:



（Figure 5.6.4）

2. UDP

Under this mode, Target address is a address pool, all of the address in pool can connect with Serial device server, can choice 0-4 channel connect at the same time. Figure 5.6.5 as follows:



（Figure 5.6.5）

5.7 AT Command Mode

By setting “way to enter into AT order Mode”, users can use these entering ways to enter into AT Command Mode.

There are 3 kinds of ways to enter into AT Command Mode, firstly, I/O port trigger， secondly, Ctrl+Break trigger， thirdly, Character strings trigger(Hex).

way to AT Order Mode	Instruction	Function Description
I/O port trigger	Entering into AT Command Mode by hardware	
CtrlBreak trigger	When opening this mode, click Ctrl+PauseBrack to enter to AT Command Mode.	
Character strings trigger(Hex)	Entering corresponding character strings by serial port assitant to enter into AT Command Mode.	

[I/O port trigger]

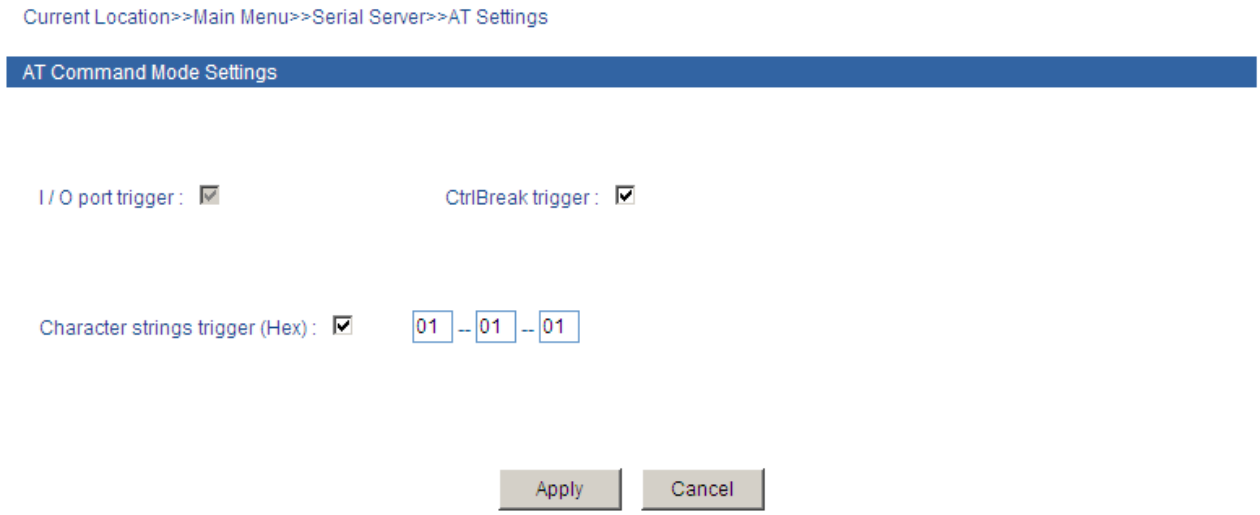
By triggering the corresponding pin, you can enter the AT command setting mode. By default, 24 pin is high level. Inputing a low level, you can enter AT Command Mode through I/O port trigger.

[CtrlBreak trigger]

Open Virtual Serial Port, click “Ctrl+PauseBreak”, then open Web page of serial device server, click [Serial Server/AT Settings] to enter into AT Command Mode page. It is enabled by the second way. As Figure 5.7.1.

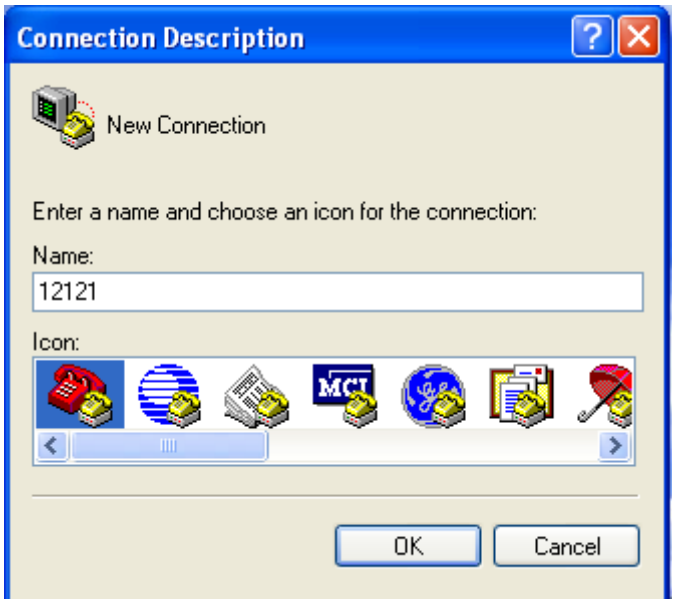
[Character strings trigger (Hex))]

By setting “Character” in “Character Strings Trigger (Hex)”. “Serial Settings”, the way is to send predefined characters to serial port through software to enter into AT Command Settings Mode. As Figure 5.7.1， By setting 2 Ways, "Ctrl+PauseBreak" and "Character Strings Trigger(Hex)", any one of these kinds can enter into AT Command Mode.



(Figure 5.7.1)

After setting the "way to enter into AT Command Mode", then open the Hyper Terminal to execute AT command, as shown below,
Turn the computer, on the Windows interface, click "Start/All Programs/Accessories/communication", run a terminal emulation program to create a new connection. To take Hyper Terminal in Windows XP for example, as shown in Figure 5.7.2, type in a new name of the connection in a text box named "name", then click "OK" button.

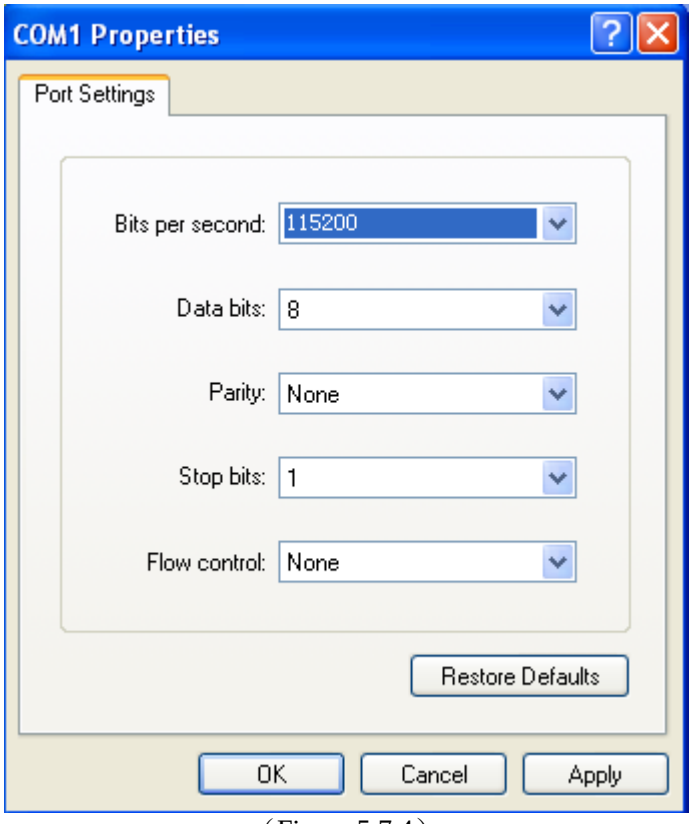


（ Figure 5.7.2）

Choose connecting serial port. Choose connecting serial port under" Connect using"（pay attention to the chosen serial port is consistent with the port connected with the configuration cable），Click "OK". As figure 5.7.3.

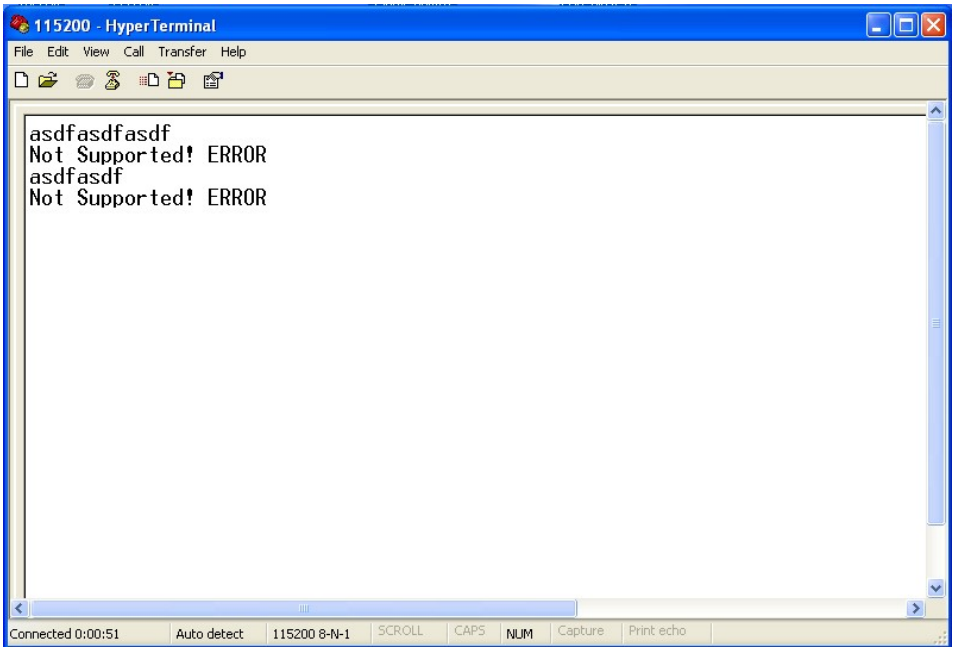
（ Figure 5.7.3）

Set serial port parameters. As shown in Figure 5.7.4， set the “Bits per second” in the”Properties” of serial port is 115200bit/s，”Data bits” is 8，”parity” is None，”Stop Bits” is 1，”Flow Control” is None. Click “OK” button to enter to “Hyper Terminal” Window.



（Figure 5.7.4）

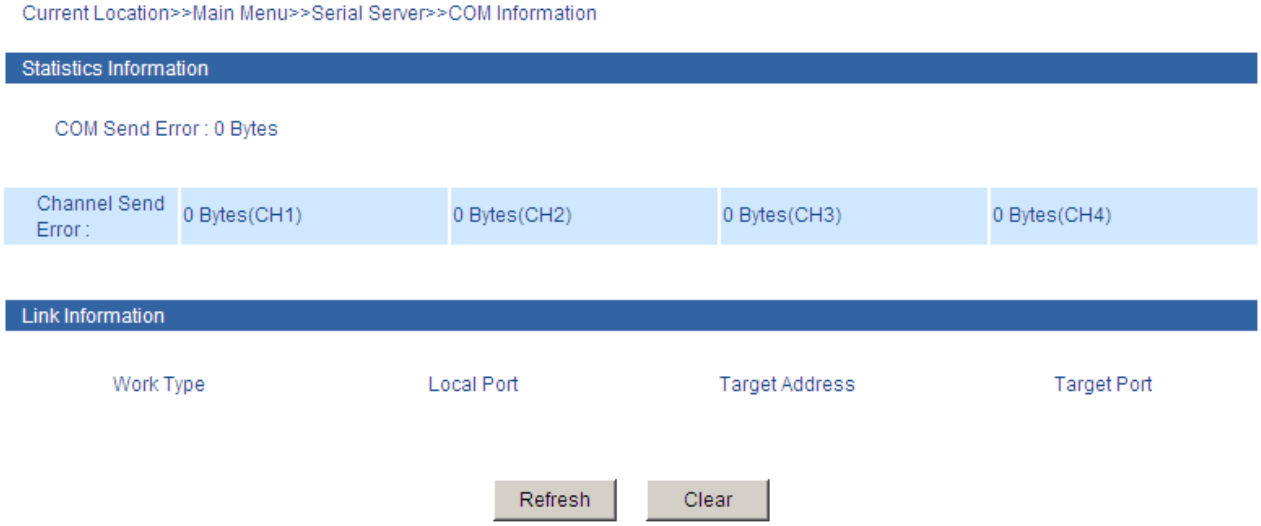
As figure 5.7.5, click again “Ctrl+Break”, at the same time click “Enter” until blinking cursor appears on the screen. In this time you can input AT configuration order through Hyper Terminal. Specific command format and configuration reference 5.10.



（Figure 5.7.5）

5.8 COM Information

The main function of serial port information: Display incorrect data statistics and connection information that send by serial port. Figure as 5.8.1.



（Figure 5.8.1）

5.9 Basic Setting

5.9.1 Login Setting

Knock [Basic Setting/Login Setting] menu, the figure as follows are Serial device server’ initial interface to modify user name and password. User can use this function to modify user name and password.

Some enterprises require administrator who monitor the device and administrator who control system or network different person, the authority must be separated. One in charge of monitoring and another in charge of system or network management. Our the serial device server provide administration by different levels: Observer authority and administrator authority. Observer just has authority to check the statues of our device and just administrator can configure our device.

User Index

User Index means which group user, there have 3pcs user index in drop down list

Access levels

Administrator: check and configure authority

Observer: check authority.

Login name

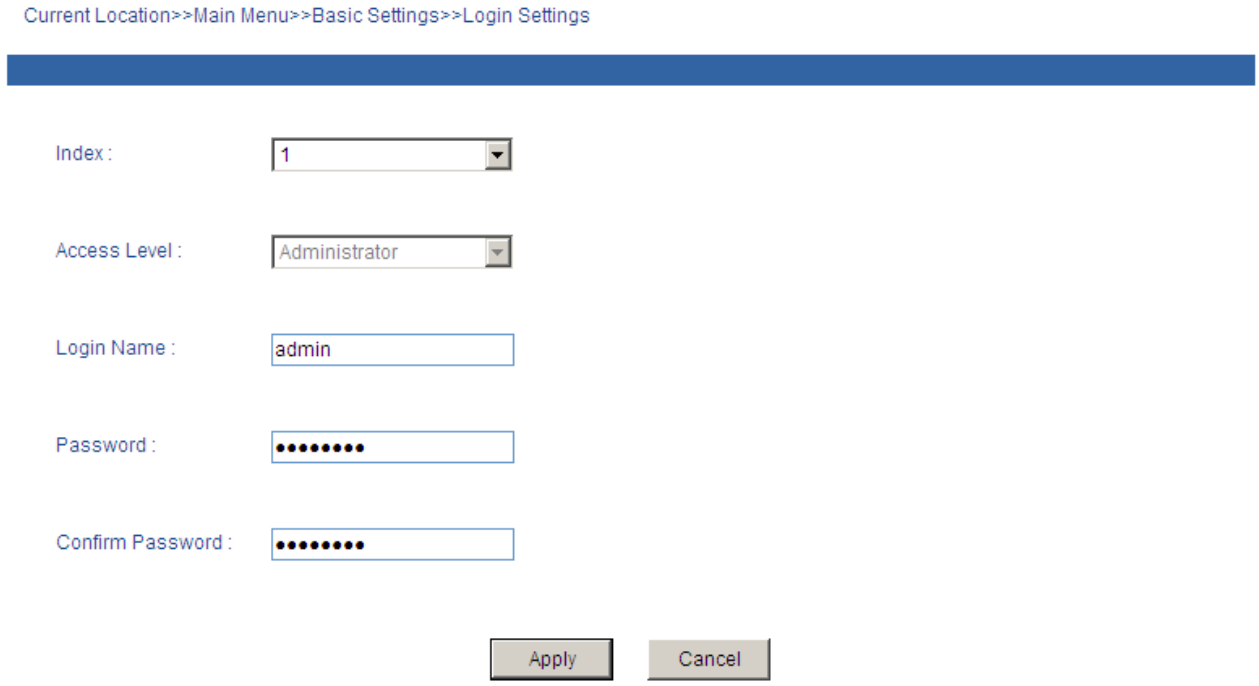
Allow English character, digit and “-””_” combine and no more than 16 bytes

Password

Allow English character, digit combine and no more than 20 bytes

Confirm password

Input password once again.



（Figure 5.9.1）

5.9.2 Network & Reboot

Configure IP address support 2 mode, DHCP and static IP address, when open DHCP function, can get the IP address from Hyper Terminal.

Device configuration support two modes, DHCP and static IP address, can get the device's IP address via client when the DHCP function is running, if you need NTP that need to connect internet, please enter the available and correct gateway and DNS address.

IP Address

IP address is an address of 32 bits length which is assigned to the device on the internet. The IP address consists of two fields: the network number field (net-id) and the Host ID field (host-id). For can conveniently manage IP address, IP addresses are divided into five categories. As blow：

Network type	Address range	Available IP network range
A	0.0.0.0～126.255.255.255	1.0.0.0～126.0.0.0
B	128.0.0.0～191.255.255.255	128.0.0.0～191.254.0.0
C	192.0.0.0～223.255.255.255	192.0.0.0～223.255.254.0
D	224.0.0.0～239.255.255.255	Non
E	240.0.0.0～246.255.255.255	Non
Others	255.255.255.255	255.255.255.255

A, B, C class address is unicast address; D class address is multicast address; E class address is reserved to prepare for the future for special purposes. IP address using dotted decimal. Each IP address is represented as four decimal integers separated by decimal points; each integer corresponds to a byte, such as, 10.110.50.101.

Subnet Mask

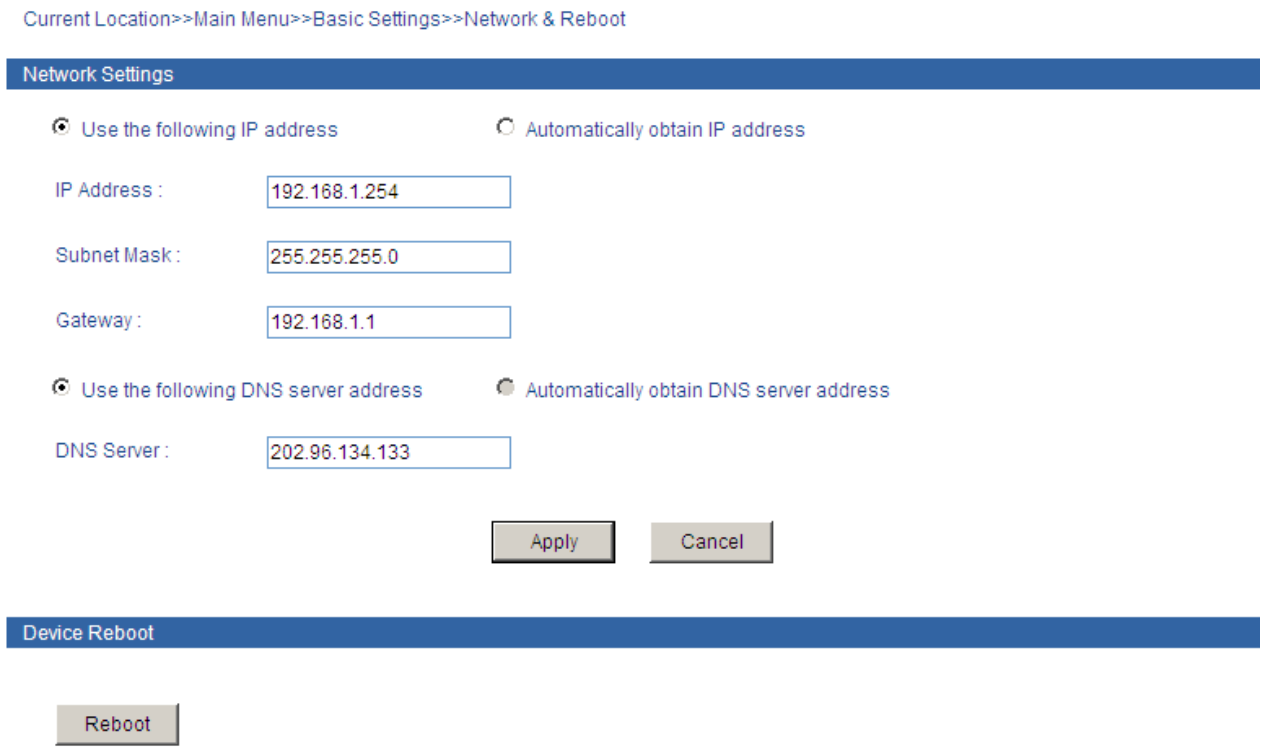
Mask is corresponding 32 bits number of IP address. Some are 1, the others are 0. These 1 and 0 can be combined arbitrary in principle, but the first continuous bits are 1 when designing subnet mask. IP address can be divided into 2 parts by subnet mask: subnet address and host address. 1 in IP address and subnet corresponds to subnet address, other bits are host address. A type of address corresponding mask is 255.0.0.0; mask of B type address is 255.255.0.0; mask of C type address is 255.255.255.0.

Default Gateway

Default gateway in the host PC is generally called default route. Default route refer to a kind of router that destination address of IP data packet will choose when it don't find other existing route. All data packets of destination address which don't exist in the list of router will choose default route.

DNS Address

DNS (Domain Name Server) is for us to analyze domain to IP address of the Internet. If our equipment needs to access a host, you need to use this server to resolve an IP address.



（Figure 5.9.2）

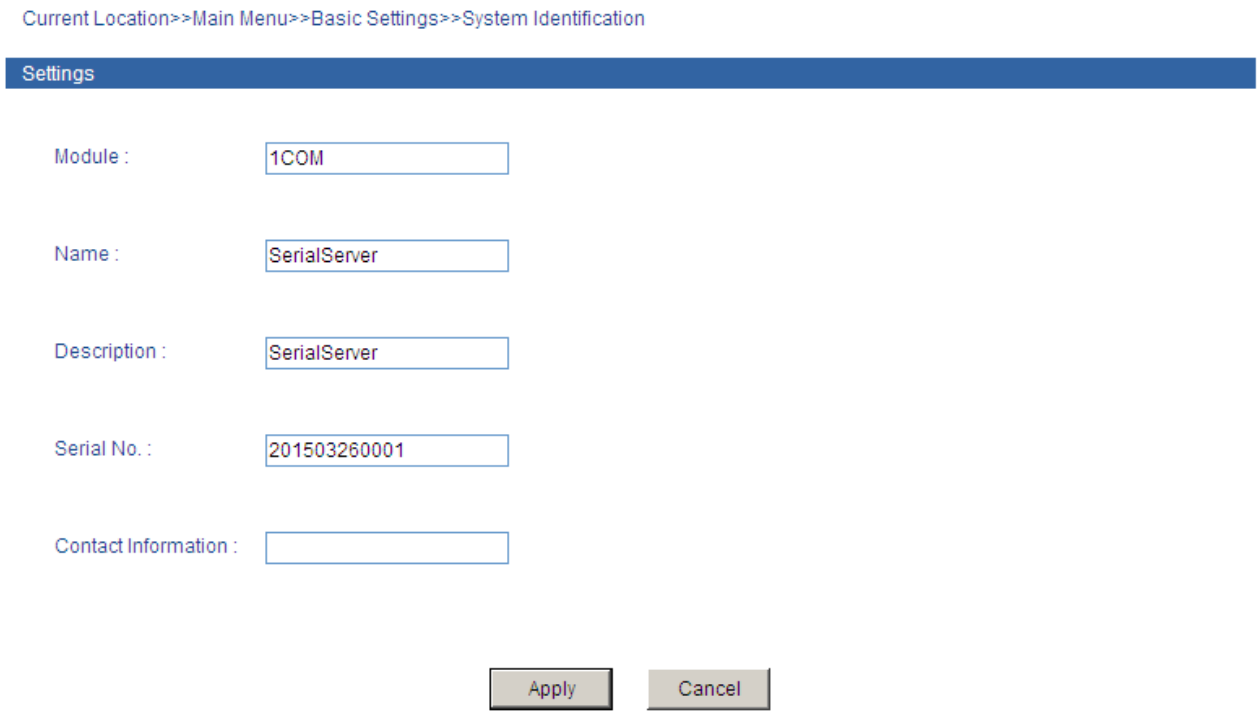
You can restart serial device server remotely. Knock [Basic Setting/Network & Reboot] menu, enter into Reboot interface, and figure as 5.9.2.

Knock<Reboot> button, “confirm’, device reboot, after 20 seconds, knock “menu bar” and back to WEB management log in interface.

If use automatically IP address, must let serial device server can access DHCP server.
Before reboot, please save the configuration, otherwise, all configurations will be lost

5.9.3 System Identification

The figure as follows is the Serial device server' device information interface, we can see module, name, description, serial No. and contact information. You can modify these items through this function, it will available after reboot.



（Figure 5.9.3）

Module

No more than 18 bytes, allow Chinese character. English character, digit and "-" "_" but do not allow space

Name

No more than 18 bytes, allow Chinese character. English character, digit and "-" "_" but do not allow space

Description

No more than 18 bytes, allow Chinese character. English character, digit and "-" "_" but do not allow space

Serial No.

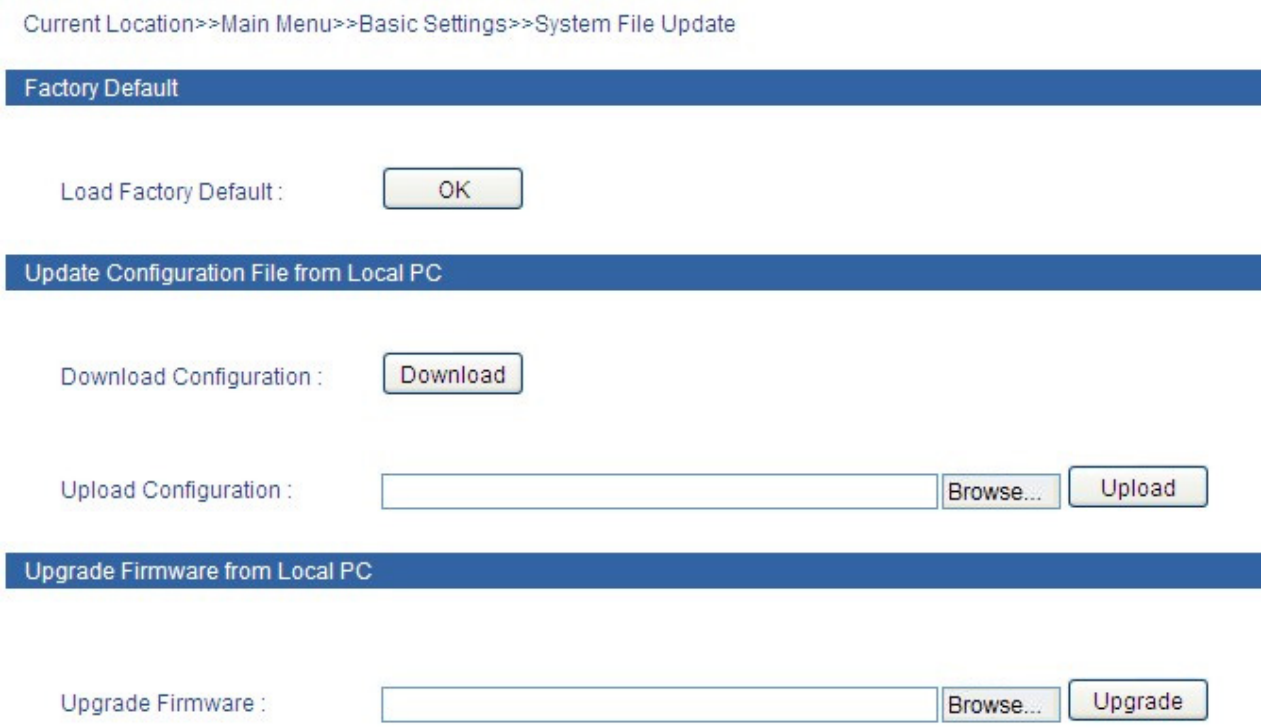
No more than 30 bytes, allow Chinese character. English character, digit and "-" "_" but do not allow space

Contact information

No more than 18 bytes, allow Chinese character. English character, digit and "-" "_" "@" "!" "," "." but do not allow space

5.9.4 System File Update

The figure as follows is the interface of Serial device server’s file management. It has 4pcs function: Factory default, download configuration, upload configuration and upgrade Firmware.



（Figure 5.9.3）

1. Default factory（Please be care of this operation）

Knock<OK> button, after default factory, IP address is 192.168.1.254 and all configurations are the same as default factory. Default configuration will be available after reboot automatic. After recover default configuration, user name and password will be: admin.

2. Download configuration files

Knock<Download>Button, after confirm, system will appear a dialog box and point out to save the configuration file in .cfg. It is convenience to recover the configuration in future.

3. Upload configuration files

Knock< Browse> button, choice the correct .cfg file and knock <upload>, after confirm, configuration information in .cfg file uploaded to device automatic and reboot automatic.

4. Upgrade firmware

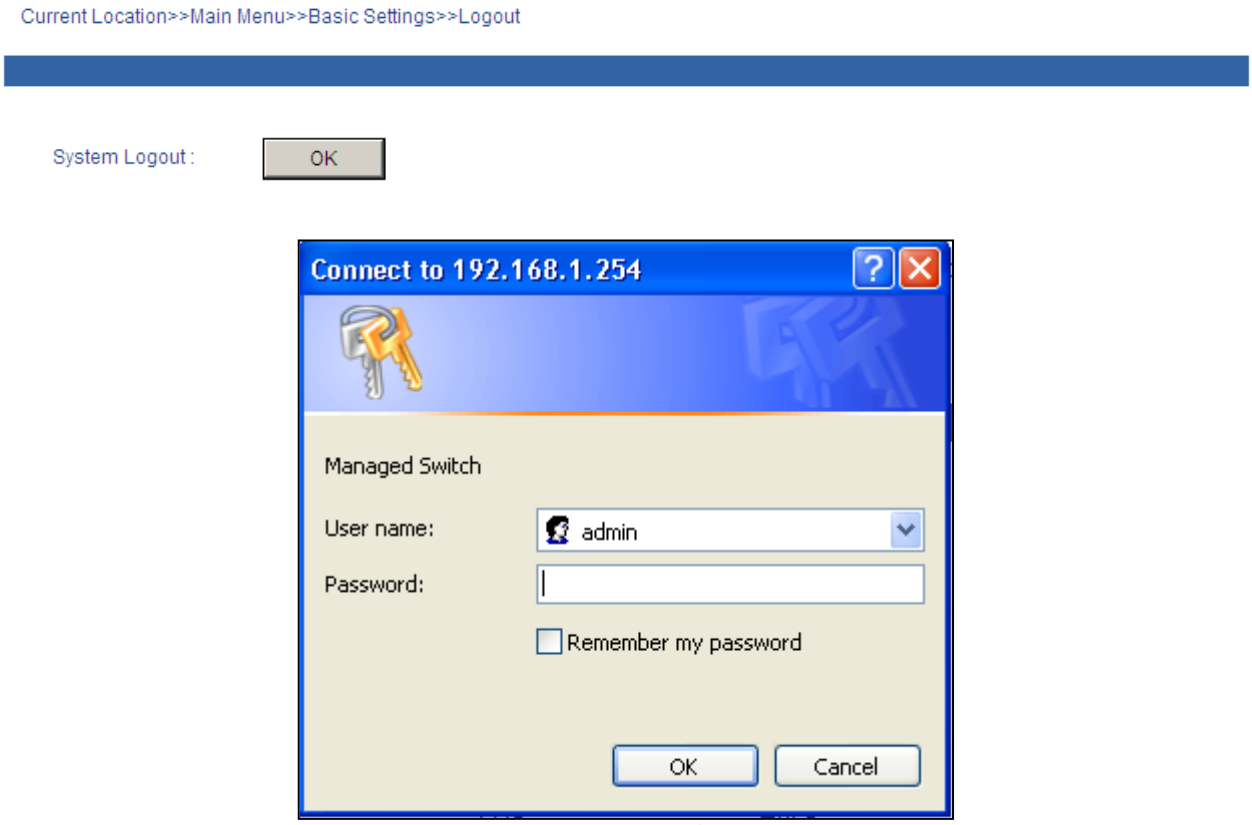
Knock <Browse> button, choice the position of the upgrade file. Knock<Upgrade> button. Point out "Forbid power off when upgrade", confirm it and then write flash. Reboot automatic, after upgrade, will refresh page automatic.

:

1. After default factory, must change the device's IP address, otherwise, if other devices make factory default, will have IP address conflict.
2. Please do not upgrade random. If you want to upgrade, must check the file is correct or not, otherwise, it is easy to damage the software.
3. Upgrade file must be bin type, please do not do any operations when upgrade, it may take upgrade failure. In upgrading, please do not operate the device and forbid know device's WEB page. If upgrade interrupts, please reboot the device and try again.

5.9.5 System Logout

Knock<Start> button, Web will be back to login interface, do not change available configuration, figure as 5.9.5.



（Figure 5.9.5）

5.10 AT Command

5.10.1 AT command summarize

AT Command provided a standard configuration interface for user, the main function: users use SCM or their own software to configure serial device server, it used to assist configuration to page, it can configure the device through Virtual COM port

5.10.2 AT command type

AT command support by serial device server is a standard interface, it is Case insensitive, and always begin with "AT", end with "\r\n" (Enter/line feed). Command, Return value and the format of parameters description is fixed. AT command has 3 types as follows:

Non-parameter command

It is a simple command, format is AT+Space+<command>\r\n. For example, quit configuration mode: AT+Space+QUIT\r\n.

Query command

It used for querying the configuration of the command. Former is AT+Space+<command>?\r\n, For example: AT+NAME？\r\n.

Parameter command

It is the most widely used format, it provided powerful flexibility, it used to configuration parameters, format is AT+Space+<command>=<>,<>,<>,<>,<>…r\n, like as; AT+IP=192.168.1.254\r\n.

Type	Condition	Return Value
Incorrect information	No Login	No Login! ERROR
	Command was not "AT' ahead	Not Supported! ERROR
	"AT+LOGIN" Login, password incorrect	ERROR
	Command non-existent	Not Supported! ERROR
	When configure parameters, if parameter type is incorrect(need number, but input letter) or input parameter was out of range (Input value less than 256, but input more than 25)	ERROR
	Input parameters quantity less than in need parameters	ERROR
	Configure the display-only parameters	Not Supported! ERROR
Correct information	Query command, display the current value	display the correct parameter, OK
	Parameters configure successful	OK

5.10.3 AT Command format

According the chapter 5.4.4, there have two methods enter into AT command format: 1. CtrlBreak trigger 2. Hex trigger.

Input correct user name and password, input "at login=admin" and Enter, it can enter into AT command format (Note: Default user name and password are "admin"), Once enter into AT command format, you can configure the corresponding functions.

No.	AT command	Operation description	Parameters description	Function description
1	LOGIN	At +Space+login=“N”	N is consist of 26 English letters and 10 Arabic numerals and the length is less than 30, it is Case insensitive	User name and password is correct, can enter into AT command
2	QUIT	AT+Space+QUIT	Quit AT operation, if did not restart device, operation disable	Use to query the parameter
3	SES	AT+Space+SES=“N”	N means sessions, range:0-3, total 4 sessions, default is 0	Configure and display current session
		AT+Space+SES?	display current session	
4	ECHO	AT+Space+ECHO=“N”	N is 0, 1. N is 1, support Echo, it is 0, did not support echo	Set AT command echo or not
		AT+Space+ECHO?	display support echo or not	
5	DEF	AT+Space+DEF	No parameter	Default factory
6	RBT	AT+Space+RBT	No parameter	Device restart
7	SAVE	AT+Space+SAVE	No parameter	Save current parameter and write into flash or eeprom
8	VER	AT+Space+VER	No parameter	Display the version of software and hardware
9	TYPE	AT+Space+TYPE=“N”	N is characters include letters, digits, dash ('-') and underscore ('_') and no more than 30, it is Case insensitive	Set or display description information
		AT+Space+TYPE?	display description information	
10	NAME	AT+Space+NAME=“N”	N is characters include letters, digits, dash ('-') and underscore ('_') and no more than 30, it is Case insensitive	Set or display name information
		AT+Space+NAEM?	display name information	
11	MAC	AT+Space+MAC?	Display MAC address	Please did not modify MAC address
12	IPM	AT+Space+IPM=“N”	N is 0,1, 0 is dynamic IP, 1 is static IP	Set or display dynamic or static IP mode
		AT+Space+IPM?	display current IP mode	
13	IP	AT+Space+IP=“N”	N is a legal IP address, can set as octonary, decimal or hexadecimal, but display is decimal	Set or display IP address, save it as configure address. Effect or not, it is up to IP mode
		AT+Space+IP?	display current IP address	

14	MASK	AT+Space+MASK=“N”	N is a legal Mask address, can set as octonary, decimal or hexadecimal, but display is decimal	Set or display MASK address, save it as configure address. Effect or not, it is up to IP mode
		AT+Space+MASK?	display current MASK address	
15	GATE	AT+Space+GATE=“N”	N is a legal Mask address, can set as octonary, decimal or hexadecimal, but display is decimal	Set or display gateway address, save it as configure address. Effect or not, it is up to IP mode
		AT+Space+GATE?	display current gateway address	
16	DNSM	AT+Space+DNSM=“N”	N is 0, 1. 0 means DNS working mode is static, 1 means DNS working mode is dynamic	Set or display DNS address, save it as configure address. Effect or not, it is up to IP mode
		AT+Space+DNSM?	display current DNS working mode	
17	DNSA	AT+Space+DNSA=“N”	N is a legal DNS address, can set as octonary, decimal or hexadecimal, but display is decimal	Set or display DNS address, save it as configure address. Effect or not, it is up to IP mode
		AT+Space+DNSA?	display current DNS address	
18	SYSWM	AT+Space+DNSA=“N”	N is 0, 1. 0 is in low consumption, 1 is in high consumption	Set or display system working mode
		AT+Space+DNSA?	display system working mode	
19	SESE	AT+Space+SESE=“N”	N is 0,1,. 0 means session enable valid, 1 means session enable invalid	Set or display session, can just set the session when session enable
		AT+Space+SESE?	display the status of session enable	
20	WM	AT+Space+WM=“N”	N is 0,1,2,3. 0 is UTP mode, 1is Tcp Server mode, 2 is Tcp Client mod, 3Tcp Auto mode	The setting is available in Real COM, SOCKET. Pair Connection
		AT+Space+WM?	display current working mode	
21	SESS	AT+Space+SESS?	display is 0, disconnect, 1, connect	display the information after session connection
22	LP	AT+Space+LP=“N”	N is a integer in “1—65535”, include 1 and 65535	Set or display Destination port information
		AT+Space+LP?	display Destination port information	

23	DAF	AT+Space+DAF=“N”	N is 0,1. 0 means current is IP address, 1 means current is domain name address	Set or display the current IP address format of current session
		AT+Space+DAF?	display current the format of destination address (IP address, domain name address	
24	DIP	AT+Space+DIP=“N”	DAF=0, can set DIP value, N is a legal IP address	Set or display the current IP address of current session
		AT+Space+DIP?	Display destination IP address, display current IP address N is a legal Mask address, can set as octonary, decimal or hexadecimal, but display is decimal	
25	DDN	AT+Space+DDN=“N”	DAF=1, can set DDN value, N is a legal domain name address, include letters, digits, dash ('-') and underscore ('_') and no more than 30, it is Case insensitive	Set or display the current domain name address of current session
		AT+Space+DDN?	Display current domain name address	
26	DP	AT+Space+DP=“N”	N is a integer in “1—65535”, include 1 and 65535	Set or display the information of destination port number
		AT+Space+DP?	Display port number information	
27	CM	AT+Space+CM=“N”	N is 0,1. 0 means connect immediately(power on, connect), 1 means “trigger mode”(It is available once working mode in TCP client or PPPOE mode, if 0, keep connection)	Set or display the information of the connection mode
		AT+Space+CM?	Display session’s connection mode(Trigger or connect immediately)	
28	KAT	AT+Space+KAT=“N”	N is a integer in “1—65535”, include 1 and 65535	Set or display the time of keep-live
		AT+Space+KAT?	Display keep-live time	
29	COMM	AT+Space+COMM=“N”	N is 0,1. 0 is half-duplex, 1 is full-duplex	Set or display serial working mode
		AT+Space+COMM?	Display serial working mode(half or full duplex)	
30	RCE	AT+Space+RCE=“N”	N is 0,1,0 means RealCom close, 1 means RealCom open	Set, display RealCom working mode
		AT+Space+RCE?	display RealCom information	
31	BR	AT+BR?	display baud rate	Set, display serial baud rate
		AT+BR=N	Set baud rat, N is 300,600,1200,2400, 4800,9600,.19200,38400, 57600,115200	

32	DB	AT+Space+DB=“N”	N is 5,6,7,8. Use how many bits indicate data. If in 5bit, can transfer maximum decimal is 31, hexadecimal is 1F, if in 6 bit, can transfer maximum decimal is 63, hexadecimal is 3F, if in 7 bit, can transfer maximum decimal is 127, hexadecimal is 7F, if in 8 bit, can transfer maximum decimal is 255, hexadecimal is FF	Set or display the length of the serial data bit
		AT+Space+DB?	Display serial data bit	
33	PT	AT+Space+PT=“N”	N is 0,1,2,3. 0:none 1:even 2:odd 3:space 4:mark	Set, display parity: (0:none 1:even 2:odd 3:space 4:mark)
		AT+Space+PT?	Display parity	
34	SB	AT+Space+SB=“N”	N is 0, 2. 0-1bit 2-2bit	Set or display stop bit (0-1bit, 2-2bit)
		AT+Space+SB?	Display stop bit	
35	LEN	AT+Space+LEN=“N”	N is the length of character string, range is 1~1460 include 1, 1460	Set or display the information of serial data frame
		AT+Space+LEN?	Display the length of serial data frame	
36	DLY	AT+Space+DLY=“N”	N is the length of character string, range is 1~500 include 1, 500	Set or display the space of character
		AT+Space+DLY?	Display the space of character	
37	UN	AT+Space+UN=“N”	N is user name, it consist of 26 English letters and 10 Arabic numerals, it is Case sensitive	Set user name
38	PWD	AT+Space+PWD=“N”	N is password, it consist of 26 English letters and 10 Arabic numerals, it is Case sensitive	Set password
39	AIMC	AT+Space+AIMC=“N”	N is 0,1. 0 means CtrlBreak un-active, 1 mean CtrlBreak active. Just N is 1, press “Ctrl+Break”, can enter into hyper terminal	Set or display the information of CtrlBreak
		AT+Space+AIMC?	Display the status of CtrlBreak	
40	AIMS	AT+Space+AIMS=“0/1+Space+xx-xx-xx”	Xx value is 01-1F, if format is “0+Space+xx-xx-xx” and just require to close this function, format can simple to”0+Space+0” , if want to zero clear, can set all xx to 0(must be 0), if format is”1+Space+xx-xx-xx”, means to open the trigger mode of character string, and set the character string.	Set or display the trigger mode of character string
		AT+Space+AIMS?	Display the information of character string	
41	CRB	AT+Space+CRB=“N”	N is CtrlBreak default output time, range is 0-60000	Set or display CtrlBreak default output time
		AT+Space+CRB?	Display CtrlBreak default output time	

42	OTM	AT+Space+OTM = “N”	The N value is 0,1, the value is 0, the advanced mode is not enabled, and the value is 1 for the advanced trigger	Set up and display advanced mode trigger status information
		AT+ Space + OTM?	Read advanced mode trigger state	
43	ADWM	AT+Space+ADWM = “N”	The N value is 0,1, the value is 0 for UDP mode, and the value is 1 for server TCP	Set up and display advanced mode status information
		AT+Space+ADWM?	Read advanced mode trigger state	
44	TNUM	AT+Space+TNUM = “N”	The N value is 0, 1, 2, 3, 4, and the number of sessions of the session under TCP Server is 0 - 4.	Set up, display advanced mode Server TCP information
		AT+Space+TNUM?	Session number of TCP Server under the advanced mode state	
45	TLP	AT+Space+TLP = “N”	Set the local port values for the advanced mode state TCP Server	Set up, display advanced mode Server TCP information
		AT+Space+TLP?	The local port values for the TCP Server are read from the advanced mode state	
46	TKAT	AT+ Space + TKAT =“N”	N for the "1 - 65535" integer between 1 and 65535	Set up, display advanced mode Server TCP information
		AT+ Space+ TKAT?	The timeout value of the timeout for the TCP Server is read from the advanced mode state	
47	TRCE	AT+ Space + TRCE =“N”	The N value is 0, 1, the value is 0 indicates the RealCom is off, the value is 1 indicates the RealCom is open.	Set up, display advanced mode Server TCP information
		AT+Space+ TRCE?	RealCom function of TCP Server under advanced mode state	
48	THBT	AT+ Space + THBT =“N”	N for the "1 - 65535" integer between 1 and 65535	Set up, display advanced mode Server TCP information
		AT+Space+ THBT?	Read the heartbeat time under the advanced mode state TCP Server	
49	UNUM	AT+Space + UNUM =“N”	The N value is 0, 1, 2, 3, 4, and the number of sessions of the session under UDP is 0 to 4.	Set up, display advanced mode Server UDP information
		AT+Space+UNUM?	The number of sessions under the advanced mode state UDP	
50	ULPx	AT+ Space + ULPx= “N”	X is 0, 1, 2, 3 N is the integer between 1 - 65535, including 1 and 65535, and the default is 30000+x, and the local port value is set for the advanced mode state UDP	Set up, display advanced mode Server UDP information
		AT+ Space + ULPx?	X is 0, 1, 2, 3 Read the local port values for the advanced mode state UDP	

51	UDAFx	AT+Space+UDAFx = “N”	X is 0，1，2，3 N value is 0,1, Value 0 indicates IP, Value 1 means domain name	Set up, display advanced mode Server UDP information
		AT+Space+UDAFx?	X was 0, 1, 3, 2 Read the advanced mode under UDP, IP format.	
52	UDIPSx	AT+Space+UDIPSx =str	X was 0, 1, 2, 3 STR: the point divided into 10 numbers, IP address settings need to pay attention to multicast address, Broadcast address and reserved IP address cannot be set Default 192.168.1.254 is IP Sets the starting address for the destination address	Set up, display advanced mode Server UDP information
		AT+Space+UDIPSx?	X was 0, 1, 2, 3 Display the starting address for the destination address for the IP format	
53	UDIPEx	AT+Space+UDIPEx=str	X was 0, 1, 2, 3 STR: the point divided into 10 numbers, IP address settings need to pay attention to multicast address, Broadcast address and reserved IP address cannot be set Default 192.168.1.254 is IP Sets the end address of the destination address	Set up, display advanced mode Server UDP information
		AT+Space+UDIPEx?	X was 0, 1, 2, 3 Display end address of destination address for IP format	
54	UDDNx	AT+ Space+UDDNx =str	X was 0, 1, 2, 3 Set up the corresponding domain address	Set up, display advanced mode Server UDP information
		AT+Space+UDDNx?	X was 0, 1, 2, 3 Get IP for domain name address	
55	UDEPx	AT+Space + UDEPx = “N”	X was 0, 1, 2, 3 N for the "1 - 65535" integer between 1 and 65535, the default is 31000+x Sets the value of the destination port	Set up, display advanced mode Server UDP information
		AT+Space+UDEPx?	X was 0, 1, 2, 3 Gets the corresponding destination port values	
56	URCEx	AT+Space+URCEx = “N”	X was 0, 1, 2, 3 The N value is 0, 1, the value is 0 indicates the RealCom is off, the value is 1 indicates that RealCom is open, and the corresponding RealCom function is set.	Set up, display advanced mode Server UDP information
		AT+Space+UDEPx?	X was 0, 1, 2, 3 Gets the corresponding destination port values	

57	URCEx	AT+Space+ URCEx =“N”	X was 0, 1, 2, 3 The N value is 0,1, the value is 0 indicates the RealCom is off, the value is 1 indicates that RealCom is open, and the corresponding RealCom function is set.	Set up, display advanced mode Server UDP information
		AT+Space+URCEx?	X was 0, 1, 2, 3 Get the corresponding RealCom function state	

 :When use DEF command to default factory, must coordinate with SAVE, RBT, otherwise, DEF is ineffective.

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First enter into AT command mode, must input password. After enter into AT command mode, if input incorrect password, will be forbid quit, must enter again. If did not do any operation within 5 minutes, system will forbid user quit to AT command, must enter again. Between AT and AT command, there just have 1 space, AT command is case sensitive