DC Power Supplies
PC communication

multicomp PRO

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Installation of USB Driver:

1. Connect USB cable to PS3005D power supply USB interface and computer USB interface; switch on and in a few seconds dialogue box “Found new hardware wizard”will come out from Windows system (see figure 1 below). If this still doesn't come out, please check whether USB cable is connected correctly or not, whether programmable power supply works well or not. If connection and working are both good, please restart PC and power supply to check if the malfunction can be removed.

Figure 1: When connecting power supply and PC with USB cable, dialogue box “Found new hardware wizard” will come out.

2. In the interface of figure 1, please select the first one“Yes，this time only”, and then click next> to enter figure 2 (see below); at this time, select the second choice and then enter the interface of figure 3.

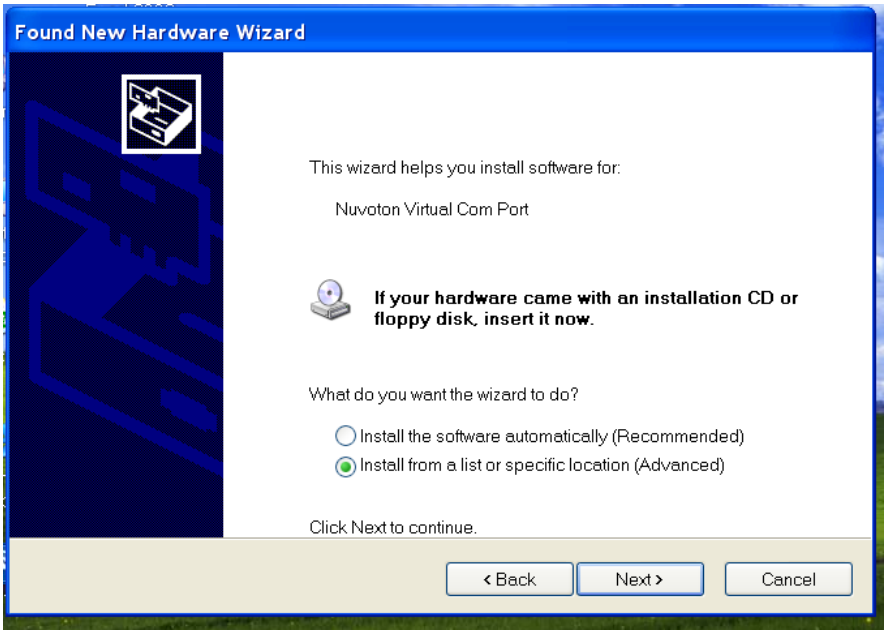


Figure 2

3. In figure 3, please select "Search for the best driver in these locations" and "include this location in the search", and then choose the route of USB driver file. If USB driver is installed through the provided CD, please select as what figure 3 shows:

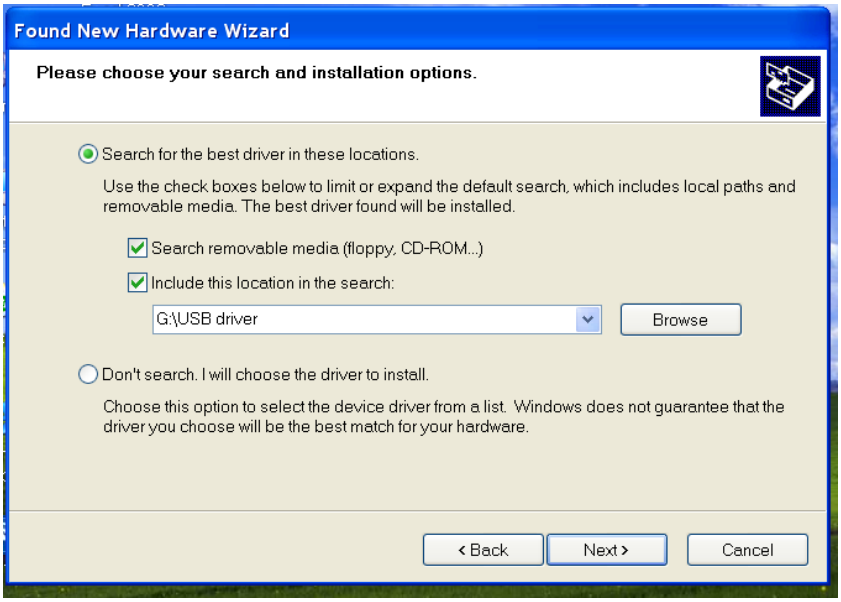


Figure 3

4. Something like Microsoft driver verification may come out from the system; if so, please click "Continue Anyway"(see figure 4), and after that, the system will start to install USB driver (see figure 5).

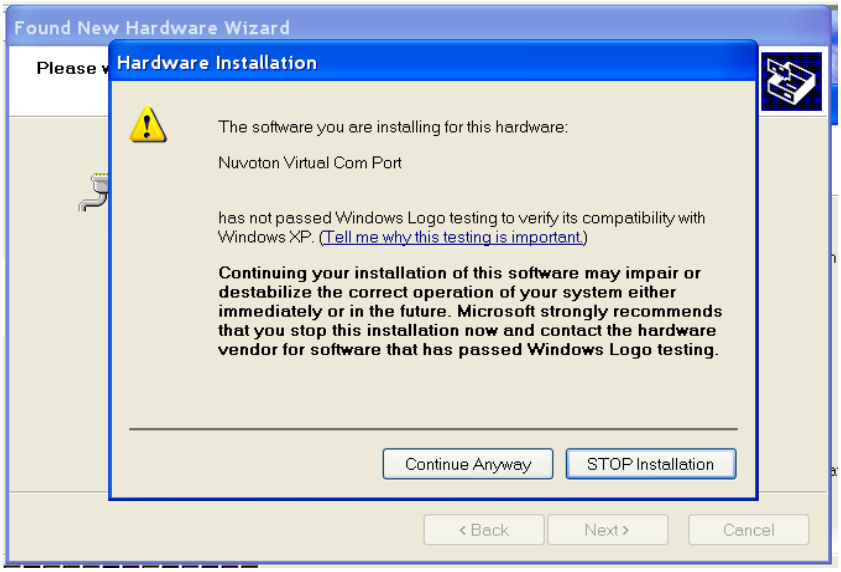


Figure 4

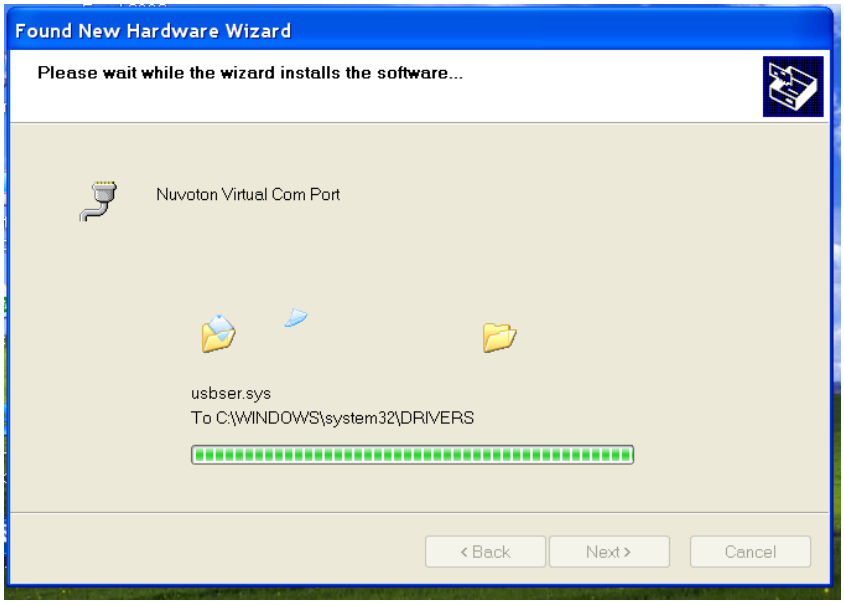


Figure 5. USB driver is being installed

5. When USB driver is installed well, the completing interface from the system as below will come out (see figure 6).

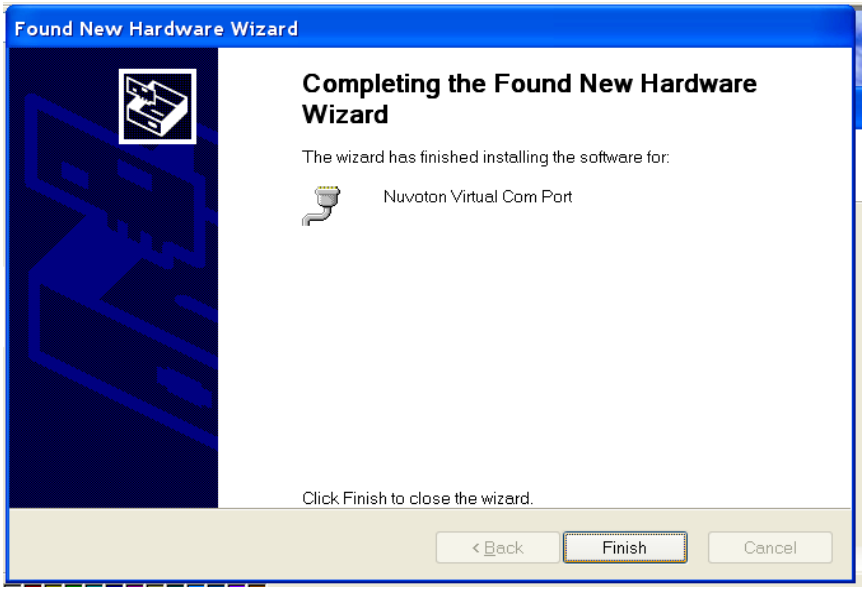


Figure 6

6. After USB driver is installed successfully, there will be 

coming out in the menu ports （COM&LPT） of Computer Management of My Computer, which means the installation is completed (see figure 7).

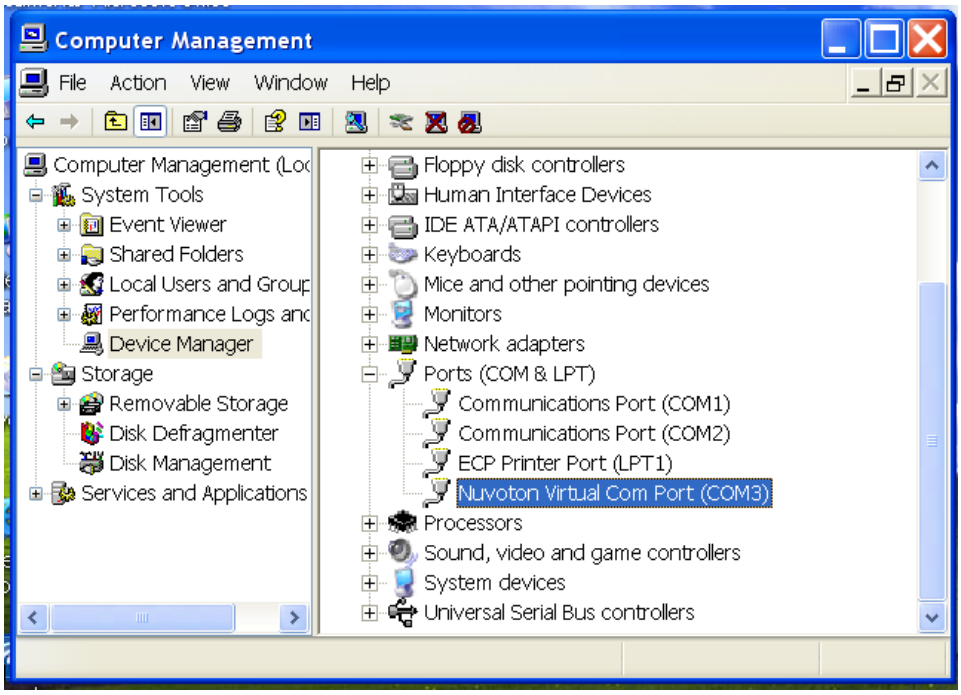
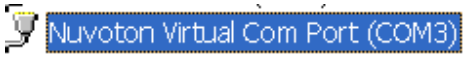


Figure 7 The hardware driver icon you will see in the interface of PC Computer Management after USB driver is installed well.

Note: in the icon 

, please note (COMX); if the value of X is more than 8, please change into ≤ 8.

72-13300 Series Multiple Channel Remote Control Syntax V4.0

Command format: VSET<X>:<NR2>

1. VSET: command header
2. X: output channel, 1or 2
3. : separator
4. NR1: parameter

Command Details:

1. **LOCK<NR1>**

   Description: LOCK or UNLOCK the front panel

   Example: **LOCK1**

   LOCK the front panel

   Example: **LOCK0**

   UNLOCK the front panel

2. **ISET<X>:<NR2>**

   Description: sets the output current.

   Example: **ISET1:2.225**

   Sets the CH1 output current to 2.225A

3. **ISET<X>?**

   Description: Returns the output current setting.

   Example: **ISET1?**

   Returns the CH1 output current setting.

4. **VSET<X>:<NR2>**

   Description: Sets the output voltage.

   Example: **VSET1:20.50**

   Sets the CH1 voltage to 20.50V

5. **VSET<X>?**

   Description: Returns the output voltage setting.

   Example: **VSET1?**

   Returns the CH1 voltage setting.

6. **IOUT<X>?**

   Description: Returns the actual output current.

   Example: **IOUT1?**

   Returns the CH1 output current

7. VOUT<X>?

Description: Returns the actual output voltage.

Example: **VOUT1?**

Returns the CH1 output voltage.

8. TRACK<NR1>

Description: selects the operation mode: independent, trackingseries, or tracking parallel.

NR1 0: Independent

1: Tracking series

2: Tracking parallel

Example: **TRACK0**

Selects the independent mode.

Note: This command is applied to Multiplel-channel models only.

9. BEEP<Boolean>

Description: Turns on or off the beep. Boolean: boolean logic.

Example: **BEEP1** Turns on the beep.

10. STATUS?

Description: Returns the POWER SUPPLY status.

Contents 8 bits in the following format

Bit Item Description

0 CH1 0=CC mode, 1=CV mode

1 CH2 0=CC mode, 1=CV mode

2, 3 Tracking 00=Independent, 01=Tracking series, 10=Tracking parallel

6 CH1 0 CH1 OUT OFF, 1CH1 OUT ON

7 CH2 0 CH1 OUT OFF, 1CH1 OUT ON

11. *IDN?

Description: Returns the identification.

Example: ***IDN?**

Contents TENMA 72-13300 VX.X SN: XXXXXX

12. RCL<NR1>

Description: Recalls a panel setting.

NR1 0-9: Memory number 0 to 9

Example **RCL1** Recalls the panel setting stored in memory number 1

13. SAV<NR1>

Description: Stores the panel setting.

NR1 0-9: Memory number 0 to 9

Example: **SAV1** Stores the panel setting in memory number 1

14. OUT<X>:<Boolean>

Description: Turns on or off the output.

X: , 1OR2, refers to CH1 or CH2

Boolean: 0 OFF, 1 ON

Example: **OUT1:1** Turns on the CH1

OUT1:0 Turns on the CH1

OUT2:1 Turns on the CH2

OUT2:0 Turns on the CH2

15. OUT<XX>:<Boolean>

Description: Turns on or off the output.

X: ,CH1 CH2

Boolean: 0 OFF, 1 ON

Example: **OUT12:1** Turns on the CH1 and CH2

OUT12:0 Turns on the CH1 and CH2

16. VASTEP<X>:<NR2>, <NR2>, <NR2>, <NR2>

VASTOP<X>

Description: Set automatic step voltage output

Example: **VASTEP1:1, 30, 0.1, 0.2**

Set CH1 starting voltage to 1V, ending voltage 30V, step voltage 0.1V and step time **0.2**s; and execute the output.

VASTOP1

The step voltage on CH1 stops.

VASTEP2:30, 1, 0.1; 0.01

Set CH2 starting voltage to 30V, ending voltage 1V, step voltage 0.1V and step time **0.01**s; and execute the output.

VASTOP2

The step voltage on CH2 stops.

17. VSTEP<X>:<NR2>

VUP<X>

VDOWN<X>

Description: Set trigger step voltage output

Example:

VASTEP 1:1.5 Set CH1 trigger step voltage 1.5V

VUP1 Set CH1 voltage up 1.5V

VDOWN1 Set CH1 voltage down 1.5V

18. IASTEP<X>:<NR2>, <NR2>, <NR2>, <NR2>

IASTOP<X>

Description: Set automatic step voltage output

Example:

IASTEP2:1, 3, 0.1, 1

OUT1:1

Set CH1 starting current to 1V, ending current 30V, step current 0.1V and step time 1s; and execute the CH1 output.

IASTOP2

The step voltage on CH2 stops.

19. ISTEP<X>:<NR2>

IUP<X>

IDOWN<X>

Description: Set trigger step current output

Example:

ISTEP 1:0.5 Set CH1 trigger step current 0.5A

IUP1 Set CH1 current up 0.5A

IDOWN1 Set CH1 current down 0.5A

IP LAN Communication Protocol

1. Format of Commands

Definition format
Query syntax
:SYST:<X>+ ? + CR(0xA)
Settings
:SYST:<X>+ SPACE(0x20) + < PARAM> + CR(0xA)

Comments
<X>: Secondary subcommands

1). Set up IP address
:SYSTem: IPADdress 192.168.1.199
Sets the IP address to 192.168.1.199.
Query syntax
:SYSTem: IPADdress?
192.168.1.199

2). Set up subnet mask
:SYSTem: SMASK 255.255.255.0
Sets the subnet mask to 255.255.255.0
Query syntax
:SYSTem: SMASK?
255.255.255.0
3).Set up the gateway
:SYSTem: GATEway 192.168.1.1
Sets the Gateway to 192.168.1.1.
Query syntax
:SYSTem: GATEway?
Return
192.168.1.1
4) Set up DHCP
:SYSTem:DHCP {0|1|ON|OFF}
:SYSTem: DHCP ON
Set DHCP enable
Query syntax
:SYSTem: DHCP?
Returns

1
5). Obtaining MAC
:SYSTem:MAC?
Returns
93-47-df-48-48-48
6). Set up Port
Port : 1~65535, The port can not set to 18191 ;
:SYSTem: PORT 6325
Sets the port to 6325
Query syntax
:SYSTem: PORT?
returns
6325
7). Set up BAUDrate
Baudrate:9600,19200,38400,57600,115200
:SYSTem:BAUDrate 9600
Query syntax
:SYSTem:BAUDrate?
Returns 9600
8). Query device information (auxiliary debugging commands)
:SYST: DEVINFO?
Returns
DHCP:0
IP:192.168.1.198
NETMASK:255.255.255.0
GW:192.168.1.1
MAC:93-47-df-48-48-48
PORT:18190
BAUDRATE:115200

9). Restore factory default of the interface
:SYST: FACTRESET
Factory interface status:
DHCP: 0
IP: 192.168.1.198
NETMASK: 255.255.255.0
GW: 192.168.1.1
PORT: 18190
BAUDRATE: 115200

2. Connection mode setting

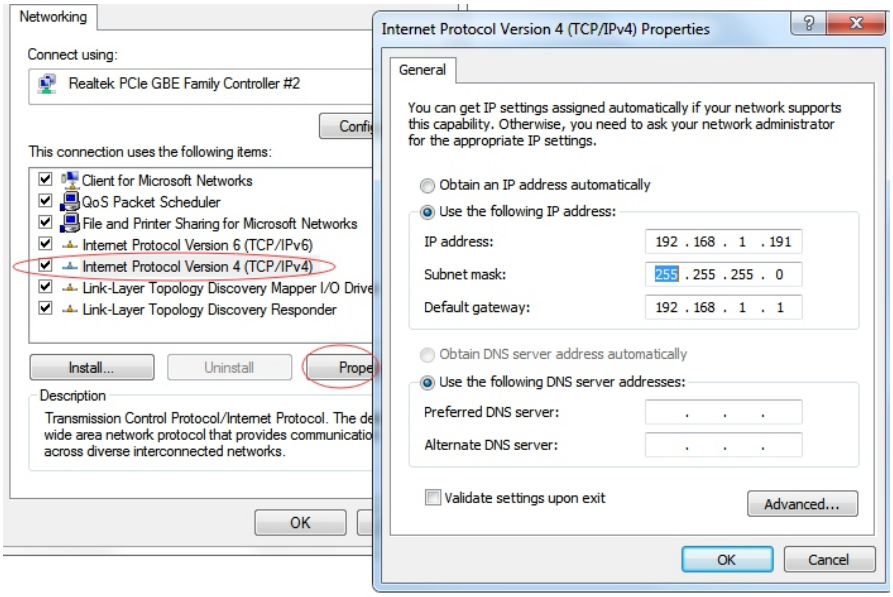
Device default static IP address

IP: 192.168.1.198
NETMASK: 255.255.255.0
GW : 192.168.1.1

<1> Direct access

1) Plug the device through one end of the network cable, and connect the PC to the other end to make the IP address of the PC and the device address on the same network segment.

Such as 192.168.1.xx



2). Connected with a switch or router

There are 2 ways to choose:

<1> Route Allocation Method (DHCP)

<2> Access through a network device (router)

It can be connected in the following 2 ways

1. DHCP: the route dynamically allocates an address, and the IP address of the device after each boot is allocated.
2. Use this method to enable DHCP ,

Command format **":**SYSTem:DHCP 1",

2 Manual setting: manually fixing the IP address, you must set the IP and routing devices on the same network segment, and can't conflict with other network addresses (Routing device network segment can be viewed through the local network, or ask the network administrator).

For example, the current LAN segment IP is as follows:

IP: 10.10.1.32
Subnet MASK: 255.0.0.0
GW : 10..10.1.1

Then you need to modify the IP 10.10.1.67 range (2~255), the gateway and subnet mask don't need to be modified.

IP 10.10.1.67 (2~255)
Subnet MASK: 255.0.0.0
GW : 10..10.1.1

3. Debugging assistant use

1. Click network debug, the local IP address will be displayed, and the device uses the UDP protocol port number 18190.
2. "Find device", automatically search for devices in the current LAN, and display the current online device in the list box, Figure 3.1
3. To communicate with a device, click the control in the list box.

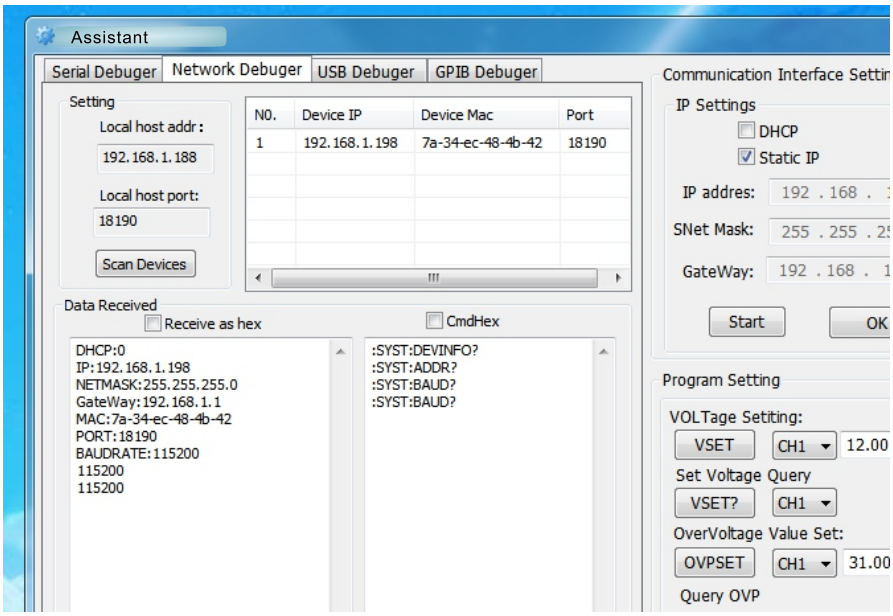


Figure 3.1

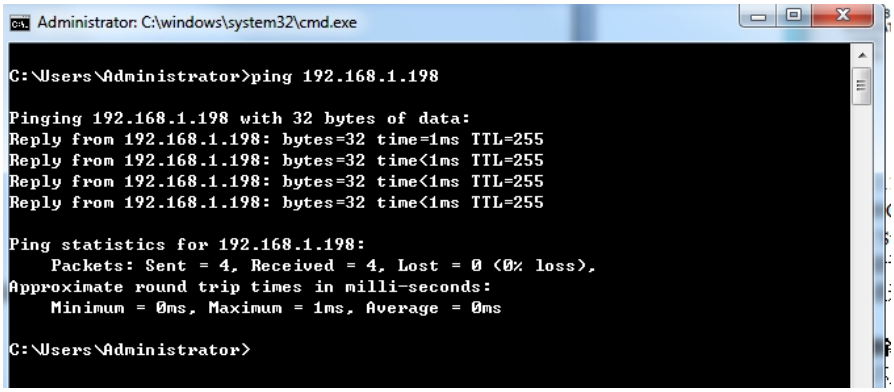
4. Set the DHCP function, check "DHCP", then click "OK" below to set the static IP. Then check "static IP" and press "OK". Finally, you need to restart the

device to make the current network configuration take effect.

5. If the setting is wrong, click “Restore Parma” to restore the factory parameters configuration.
6. Note: setting a static IP over the LAN interface requires a reboot to take effect.

4. Common troubleshooting

1 If the communication is not normal, first use the command to ping the device IP, as shown below:



2 Whether the IP address is different from the current LAN setting.

The curren LAN IP is 192.168.10.133, the network segment is 192.168.10.xx and the device IP is 192.168.5.12.

3 Whether the IP conflicts with other IPs in the LAN.

4 Whether the port number is set incorrectly.

5 The firewall blocked the device port.

5. Programming steps

Connect to the device via a computer network cable (refer to the communication protocol command)

1 Select the network protocol type as UDP

2 Local host IP; such as the current computer IP (192.168.1.3)

3 Local host port number 18190

4 Device IP: (192.168.1.198)

5 Device port number 18190

As shown in Figure 5-1 below:

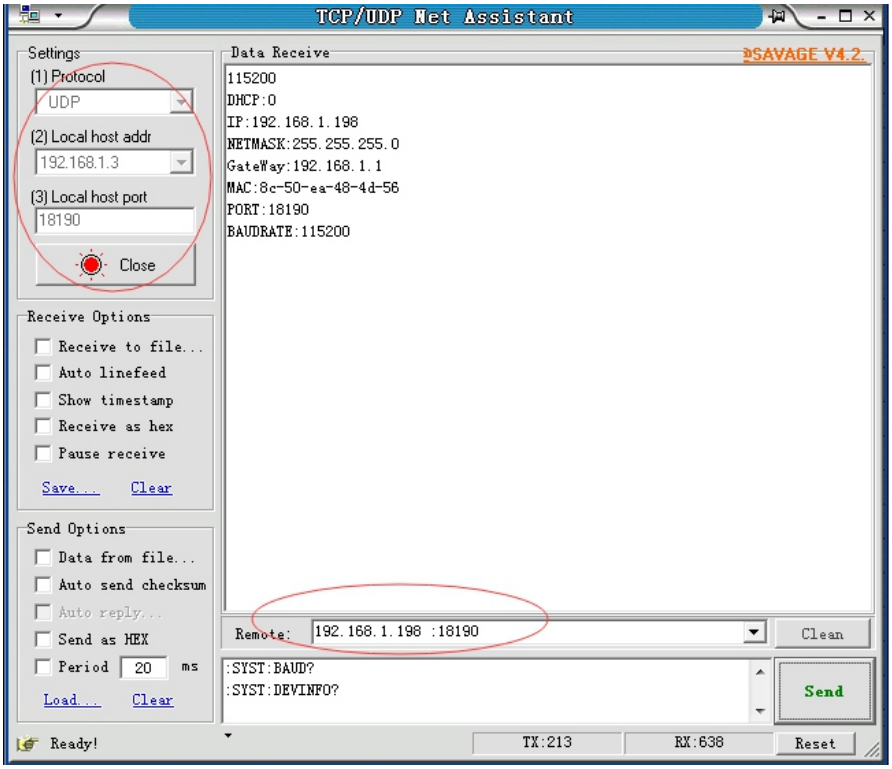


Figure 5-1 Network debugging assistant and device communication

Precautions

1. The device port number and computer port number must be the same. The device port number is changed to 35876, then the computer configuration port must also be 35876;
2. Modify the IP and subnet mask through the network configuration. The gateway will take effect only after the device is restarted. If it is another interface (such as serial port or USB), it will take effect immediately;
3. If the parameter configuration is wrong, the network can't communicate, need to reset the parameters, and you can reset through RS232 serial port or USB, or use the restore factory command directly.